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ABSTRACT

This study was conducted to identify emerging jobs in vocational agriculture in Texas. Two job survey booklets were constructed and used to collect job information from 2,000 agribusinesses and 1,600 vocational agriculture teachers in Texas. They were asked to identify jobs that were new and emerging. These jobs were further investigated to develop job descriptions and employment requirements for each. Additional investigations were made to determine if the type of vocational agricultural training or school location were related to the types of jobs in which teachers placed students. Other background data were collected and analyzed to determine if any relationships exist that might explain why there is a difference between jobs in which businesses reported they would consider employing a vocational agricultural student and total placement in the state. The study resulted in the identification of more than 150 jobs that were described as "emerging." That is, these jobs have a relatively high placement potential for vocational agricultural students or graduates. Comprehensive job descriptions were developed to identify the primary work requirements for each job. It was recommended that this information be used by teachers to point out the requirements for certain jobs to students and to effect a better match between students and courses of study. The study also suggested that the results could be used by developers of instructional materials, by consultants to evaluate and create training plans, and by school administrators in preparing teacher inservice workshops for vocational agricultural teachers. (Author/KC)

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IDENTIFICATION AND ANALYSIS OF EMERGING OCCUPATIONS IN VOCATIONAL AGRICULTURE

AUGUST 1981

FINAL REPORT

PREPARED BY

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FOR THE

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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VOCATIONAL AGRICULTURE PROGRAM

TEXAS EDUCATION AGENCY

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ABSTRACT

This study was designed to identify emerging jobs in Vocational Agriculture. Two job survey booklets were constructed and used to collect job information from agribusinesses and Vocational Agriculture teachers in Texas. Over 160 jobs were identified as new and emerging. These jobs were further investigated to develop job descriptions and employment requirements for each.

Additional investigations were made to determine if the type of Vocational Agriculture training or school location was related to the types of jobs where teachers placed students. Other background data were collected and analyzed to determine if any relationships exist that might explain why there is a difference between jobs where businesses reported they would consider employing a Vocational Agriculture student and total placement in Texas.

The results of this study can be used by teachers when matching a student's interests and skills to job requirements. In addition, it will provide information teachers can use to evaluate potential training stations. Instructional materials development personnel can use the information in developing or revising instructional materials. Area consultants will be able to use these results to evaluate training plans and to guide teachers in developing their placement objectives or strategies. The Agency will be able to use this information to make predictions regarding program growth and direction.

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INTRODUCTION

During the past 200 years, United States agriculture has evolved from a self-contained industry to a group of industries bound by a common function -providing food and fiber. Prior to agricultural mechanization and specialization, the manufacturing of farm supplies and equipment and the storing, processing, and marketing of farm products occurred on the farm. As these operations became more complex, farmers found support in segments of other industries that specialized in particular aspects of agriculture. The function of agriculture was no longer contained in a single industry. Rather, an assortment of businesses from several industries contributed in providing agricultural products to consumers (Davis and Goldberg, 1957; Cooper, 1981).

Regardless of industry location, businesses involved in the supply of food and fiber contain jobs that require competence in agriculture (Economic Research Service, 1974). Unfortunately, identifying agricultural occupations in diverse industries is difficult using "conventional" manpower information. The United States Department of Labor job classification system and subsequent labor demand statistics provide a misleading picture of agricultural employment (Economic Research and Analysis Division, 1977; Employment and Training Administration, 1979). Only jobs directly related to production agriculture are attributed to agricultural industry (Employment and Training Administration, 1977). Such information may lead agricultural educators to overlook occupations that require agricultural training.

STATEMENT OF NEED

Rapid growth of the Texas economy and of new technologies during the past decade has caused a realignment of career opportunities in agriculture. The trend in production agriculture has been toward larger units with fewer, but more skilled, workers. Smaller, often part-time farms have offset this trend slightly (Bureau of the Census, 1980). Even more important in terms of training requirements has been a continued growth in the need for workers in agricultural services, processing, marketing, and manufacturing occupations. Such jobs are normally located off the farm; yet, they require agricultural skills and knowledge (Bureau of Labor Statistics, 1980).

This redirection of agricultural jobs and an absence of reliable employment data have made decision-making difficult for individuals charged with determining current and future agricultural training needs. New and emerging occupations exist today which did not exist ten years ago. Also, realignment of career opportunities has resulted in an increasing awareness of previously existing occupations which have not had placement and/or training emphasis through Vocational Agriculture programs. Rapid changes have made the task of staying abreast of training needs and placement opportunities a near impossibility for Vocational Agriculture teachers, the Texas Education Agency's staff in agricultural education, and instructional materials development personnel.

Vocational Agriculture teachers across the state have voiced concern, emphasizing the need for up-to-date training and placement information about new occupational areas. Personnel developing instructional materials need to know the jobs and training requirements for new agricultural occupations in Texas. Current information would guide them in determining the content requirements of instructional materials for career areas in which existing curriculum does not fulfill training needs. In summary, agricultural educators

need information about new and emerging agricultural occcupations to (1) evaluate existing programs, (2) develop timely curriculum materials, (3) ensure an adequate supply of trained workers, (4) provide career counseling to students, and (5) recruit students.

To ensure that the Vocational Agriculture program in Texas remains abreast of changes and provides the appropriate curriculum to prepare students for employment in new and emerging occupations, a major effort was undertaken to identify these occupations and their general work requirements.

OBJECTIVES

To supply agricultural educators with information about the agricultural labor market, this study addressed the following objectives:

I Identify and analyze entry level agricultural jobs in which potential exists for employment of Vocational Agriculture graduates.

II Identify and analyze emerging agricultural occupations.

III Partition job titles by the type(s) of business(es) in which they exist.

IV Document the perceptions of agricultural employers toward the skill and knowledge areas most important to a beginning employee's success and compare these with the perceptions of Vocational Agriculture teachers toward the skill and knowledge areas most important to Vocational Agriculture.

V Develop guidelines for use by teachers in surveying their local areas.

Employment in Agriculture and Agribusiness Occupations, (Economic Research Service, 1974), ERS 570, published by the United States Department of Agriculture, was a cooperative venture with three other federal departments. This publication was prompted and guided by the interdepartmental Committee on Employment Opportunities and Training Needs in Agribusiness, with representation from, in addition to USDA, the U.S. Department of Commerce (Bureau of the Census), U.S. Department of Health, Education and Welfare (Office of Education), and the U.S. Department of Labor (Manpower Administration and Bureau of Labor Statistics).

Nine states, identified to be representative in total of the nation in agribusiness functions, were requested to participate in the study and all agreed. Special committees were formed in Texas, Ohio, South Carolina, New York, California, Iowa, Oregon, Pennsylvania, and Minnesota. In each state a "panel of specialists", representing segments of the agribusiness sector, was formed for inputs and review of the work in progress.

Utilizing data extracted from the 20% sample of the Census of Population of 1970, (Bureau of the Census, c. 1971), relating to employment, matrices were formed from the industries and occupations listed in the Classified Index of Industries and Occupations, (Bureau of the Census, 1971), which utilized items 33-35 of the 20% sample. The matrix of 215 industries and 417 occupations was reduced by specialists to a 108 occupations/201 industries matrix and reviewed by state panels for agribusiness implications.

Data extracted were divided into three categories by panels of specialists: those occupations requiring agribusiness competence only in selected industries and those in which some, but not all, workers within selected industries require agribusiness competencies.

The resulting tables provided the 1970 agribusiness manpower requirement within the categories mentioned above.

Employment in Agricultural and Agribusiness Occupations, Region 6, (Economic Research Division, 1974), ERS 576, was similar to ERS 570 except that the data generated were applied to a region made up of the states of Arkansas, Louisiana, New Mexico, Oklahoma and Texas.

Employment and Training Needs in Texas Agribusiness, (Fritsch and Lorenz, 1973), was the product of a TEA funded project that worked in liaison with the the national committee and the national project of similar title. The Texas project and publication performed independently but in coordination with groups and individuals of other states and offered expanded treatments and recommendations for Texas. The work of the Texas staff and the Texas Panel of Specialists was explained and slight variation in utilization of data was employed to deal with limitations encountered. Utilizing two groupings rather than the three of the national study, but with two subgroupings for one, the Texas study was able to identify levels of training required with improved precision.

The study found that agricultural competence was required in 141 occupations existing in 172 industries. It further estimated that in some cells of the industry/occupation index limited agricultural competence was required. A factor of 50% was applied to those occupations.

Of a total labor force in Texas of 4,141,529 in 1970, the study found that 514,382 persons required agricultural competence, or approximately 12.5% not including 133,216 operators of part-time and retirement farms. Tables were provided for numbers of Group I and Group II employment.

Fritsch (1974) completed a second study, Agricultural Employment and Training Needs in Texas. In addition to projecting to 1979 the manpower requirement in agribusiness, data were generated for demand in farm machinery and equipment, nursery, florist and horticultural businesses.

McClay (1978) was the coordinator of a national effort in the identification of competencies required in agribusiness occupations. The report, Identifying and Validating Essential Agricultural Competencies Needed for Entry and Advancement in Major Agriculture and Agribusiness Occupations, was compiled from the work of 62 investigators in agricultural education across the nation and coordinated by McClay. The 584 page compilation lists occupations that may be emerging under the general headings of Agricultural Supplies and Services, Agricultural Mechanics, Agricultural Products, Horticulture, Renewable Natural Resources and Forestry.

The Texas Employment Commission published Job Scene 1985, (Economic Research and Analysis Division, 1977), which was a listing of existing jobs in Texas with projections of needs in 1985. The scope of this publication was limited to a listing of jobs with no description of work or training equirements. The scope also limited the specificity of the job listings. Job Scene 1985 could be used as a guide for further investigation, but could not be used by itself to answer the questions being addressed in this project.

The Texas Employment Commission also published Texas Occupational Employment Statistics - Industry Staffing Patterns for Selected Manufacturing Industries, (Economic Research and Analysis Division, 1978). This report represented part of the result of the Occupational Employment Statistics (OES) Program involving State Employment Security Agencies in conjunction with the Employment Training Administration and the Bureau of Labor Statistics. The OES Program was designed to (1) provide accurate profiles of occupational resources by industry and trends in the number of workers employed by occupation, (2) aid in projections of future manpower requirements by industry and occupations, and (3) identify emerging and disappearing occupations. The scope of this program limited the report to a listing of jobs within a structured format providing limited specificity of job titles and related data. The report

did not include a description of work or training requirements. This document could be used as a reference and possibly for comparison of limited data bases within the scope of this project but it could not be used by itself to answer the questions being addressed in this investigation.

The Department of Labor's Dictionary of Occupational Titles (DOT), (Employment and Training Adminisration, 1977), provided a list of all jobs (approx. 20,000 in the United States) as defined by all state employment agencies and by the department's own survey efforts. The DOT contained most jobs found in the United States economy, but not all of them apply to agricultural jobs in Texas. The DOT job definitions reflected composites of jobs rather than specific information as needed by this project. The DOT has also been used as a guide for further investigation into the areas of concern to this project. The broad definitions of work performed provided by DOT have been a great help in the development of survey instruments and the analysis process.

The Standard Industrial Classification Manual (SIC), (Statistical Policy Division, 1972), published by the Executive Office of the President's Office of Management and Budget was developed for use in the classification of organizations by type of activity in which they are engaged. The SIC manual was used to identify businesses and industries to be surveyed for this project. The classification scheme used in the SIC was recognized as very acceptable in developing samples of businesses and industries for survey purposes.

The United States Department of Health, Education and Welfare has published Instructional Program Codes for Agriculture, (U.S. Office of Education, n.d.) to guide persons who have employment objectives in agriculture. This document listed and described general occupational categories. Each occupational category has specific areas of instruction listed with a brief description of related competencies.

PROCEDURES

This project was concerned with the identification of emerging occupations in Vocational Agriculture. In addition to the identification of jobs, the study also collected information on agricultural knowledge and skill areas essential to a beginning employee's success in the various jobs.

Development of Data Collection Instruments

Two instruments were developed to collect the data needed by this project. One instrument was designed for completion by agricultural employers; the second, for Vocational Agriculture teachers. One part of each questionnaire consisted of a list of job titles relevant to the field of Vocational Agriculture. The list was developed through an extensive review of information from the United States Department of Labor, the Texas Employment Commission, the United States Department of Education, Texas Education Agency, other federal and state agencies, and results of research by universities. An informal advisory committee of agricultural employers and present and former Vocational Agriculture teachers reviewed the list and suggested some additional job titles and deletion and combination of some job titles. The final list of 619 job titles was incorporated into the survey documents for both agricultural employers and Vocational Agriculture teachers.

Respondents to the business (employers') survey questionnaire were asked to indicate (1) the job titles that existed in their businesses and (2) the job titles for which they would consider employing a person trained through Vocational Agriculture. In the questionnaire sent to Vocational Agriculture teachers, respondents were requested to indicate job titles in which they had placed (1) a former or present co-op student, (2) a former production agriculture student, and/or (3) a former pre-employment lab student (including CVAE and VEH) within the past three years.

In another section on both questionnaires, thirty-three knowledge and skill areas taught in high school Vocational Agriculture were listed. These knowledge and skill areas were developed by summarizing subject matter areas from the Basic Curriculum Guide for Production Agriculture in Texas (Department of Occupational Education and Technology, 1978), the Group Instruction Handbook for Vocational Agriculture Teachers (Vocational Instructional Services, n.d.), the Group Instruction Handbook Cooperative Part-time Training (Vocational Instructional Services, 1975), and curriculum guides from cooperative part-time training and several pre-employment laboratory training programs (Department of Occupational Education and Technology, 1979).

Participants in the business sample were asked to check the ten skill and knowledge areas that, in their opinion, were most important to a beginning employee's success in their organization. Similarly, Vocational Agriculture teachers were instructed to check the ten Vocational Agriculture skill and knowledge areas they felt were most important.

The survey form sent to Vocational Agriculture teachers had two additional sections: (1) background information and (2) factors considered most often when evaluating a job for co-op placement.

Finally, a structured interview form was developed to collect information describing work requirements of emerging jobs. This form was employed via personal and/or telephone interviews of job supervisors.

Sampling Procedures

A statewide sample of businesses requiring workers with competence in agriculture was needed to determine emerging jobs in agriculture. To delimit this sample, the Standard Industrial Classification (SIC) Manual (Statistical Policy Division, 1972), published by the President's Office of Management and Budget, was used. Project staff gleaned from the manual those industrial classification codes which identified businesses requiring employees with agricultural

competencies. The staff, with the assistance of advisory persons knowledgeable of business generally and agriculture specifically, reviewed the types of business referenced in the SIC Manual and selected those most relevant to education in Vocational Agriculture. Many types of businesses in Texas were selected for sampling (see Appendix A). Using the SIC as a selection guide, approximately 22,604 business organizations were identified as relevant to Vocational Agriculture in Texas. A random sample of 1,650 businesses was drawn from the population frame. This frame, however, included almost no production agriculture firms. An intensive search for a data base of farms and ranches resulted in the identification of the Texas Natural Resources Information System. The "Business Sales and Employment Report" from this system contained 4,544 businesses whose SIC codes were labelled "production agriculture". A sample of 350 production agriculture businesses was selected randomly from this data base. Totally, 2,000 business firms were mailed survey forms.

All Vocational Agriculture teachers (exactly 1,600) were asked to complete the personal information section and to check the ten most important skills and knowledge areas in Vocational Agriculture. Only teachers who coordinated cooperative part-time training programs were requested to select the five factors considered most often when evaluating a potential co-op job. Finally, data on placements in agricultural jobs were collected by department; that is, all teachers in multiple teacher departments were instructed to collaborate in identifying job titles in which Vocational Agriculture graduates or co-op students had been placed. This last procedure was employed to prevent "duplicate counting" of a single student who had completed perhaps three years of production agriculture and one year of cooperative part-time training.

Field Administration Procedures

To encourage returns from the various sub-groups, a correspondence plan was developed. In the initial mail-out, cover letters signed by the Director of

Agricultural Education, Texas Education Agency, accompanied the questionnaire. In the first follow-up to Vocational Agriculture teachers, a letter signed by the area consultant, TEA, was sent to each of the teachers in his geographic area of jurisdiction. A final follow-up to teachers, signed by project staff, included a listing of businesses surveyed from the surrounding area. Not only were teachers once again requested to respond, but also they were asked to contact the businesses surveyed to urge their response. These procedures resulted in a total of 245 usable responses from businesses and 751 usable returns from teachers of Vocational Agriculture.

Upon return, each survey document was inspected by the staff. Each item was checked to ensure that the respondents had followed the directions prescribed for completing the form. Survey instruments for which the respondents had failed to follow directions correctly were rejected for input into the data processing phase. Data from accepted response forms were keyed and verified. Jobs added by Vocational Agriculture teachers and/or business respondents were compared to the job list; those that were in fact different than the job list were recorded for further analysis.

Data Processing for Analysis

The basic analytic procedure used in the study was a modified version of the job analytic method in the Dictionary of Occupational Titles (Employment and Training Administration, 1977). The following procedures allowed the project staff to identify those jobs in which potential exists for placement of graduates of Vocational Agriculture and those jobs emerging in the agricultural job market in Texas. Jobs in which potential exits for placement of graduates of Vocational Agriculture programs were identified simply as those for which employers indicated that they "would hire" a Vocational Agriculture graduate. The responses by the sample to "would hire" were transformed to a population estimate as follows:

$$\frac{\text{Number of Agricultural Businesses That Indicated "would hire" In A Job Title}}{\text{Number of Agricultural Business Respondents}} \times \text{Number of Agricultural Businesses in Texas} = \text{Total "would hire" in a Job Title}$$

To determine whether or not jobs for which employers would consider hiring a Vocational Agriculture graduate exceed student placements, the responses from businesses had to be compared to the responses from teachers of Vocational Agriculture. This comparison established the status of placements relative to the agricultural job market in Texas.

The status of placements relative to the agricultural job market was determined by computing a comparison or ratio of "total placements" as indicated by Vocational Agriculture teachers to total responses of businesses that would consider hiring a Vocational Agriculture graduate (known as "would hire"). This overall ratio of placements to "would hire" was termed the "total potential placement ratio" or TPPR ($TPPR = \frac{\text{Total Placements in All Jobs}}{\text{Total Would Hire in All Jobs}}$). A ratio for each job title on the list was also computed. Again, this individual job title ratio was calcuated by dividing placements in a job title by number of "would hire" responses. This ratio - one for each job title - was designated as "potential placement ratio" or PPR ($PPR = \frac{\text{Total Placements in a Job Title}}{\text{Total Would Hire in a Job Title}}$). The ratios for all job titles were then compared to the TPPR: The TPPR was subtracted from each PPR. This figure, then, was termed "potential placement status" or PPS (PPS = PPR-TPPR). The PPS's ranged from strongly negative to strongly positive, they were ranked in ascending order, and those that appeared at the top of the list were identified as "emerging jobs".

The skill and knowledge areas were ranked in descending order by the frequency of response. In other words, both business and teacher respondents checked the "most important" skill and knowledge areas. Then, those skill and knowledge areas

that received the most checks were deemed to be most important. Similarly, the factors considered most often in evaluating a co-op job were ranked by the number of teacher-coordinators who checked each factor.

PRESENTATION OF DATA

The data presented in this section were collected from teachers and businesses using the survey forms located in Appendices D and E.

Table 1, on pages 19 to 25 , presents the job titles and the frequency of response to each job title for both the teachers and the businesses. The teachers' responses are categorized under the headings (1) "COOP", (2) "PRODUCT", and (3) "PRELAB". These three headings represent (1) placement of present and former coop students, (2) placement of production agriculture program completers, and (3) placement of pre-employment laboratory program completers, respectively. Similarly, "SUM" represents the total number of responses, summing the three previous columns. Actually, each of the figures represents a population estimate; for example, COOP = Number of Responses X $\frac{\text{Total Number of Departments Responding}}{\text{Number of Departments in the Population}}$. Since the respondents equalled half of the population, the sample frequencies were simply doubled to yield an estimate of the population frequency. So, for the past three years, an estimated 530 Vocational Agriculture departments had placed students in "full ownership", production agriculture businesses or custom operations. Similarly, approximately 672 departments had placed students in production agriculture partnership operations.

The last two columns in Table 1 present data collected from employers. "EXISTING" represents responses of employers who indicated that a particular job title existed in their businesses. Similarly, "WLD HIRE" indicates the responses of employers who checked that a job title was a possible employment opportunity for a person trained in Vocational Agriculture. Just as the data from the teacher sample were transformed to population estimates, so were the figures from the business sample. The formulae were:

(1) EXISTING = $\frac{\text{Number of Agricultural Businesses in Texas (27,148)}}{\text{Number of Agricultural Businesses Responding to Survey (245)}}$ X Number of Agricultural Businesses Responding That a Job Title Existed in Their Organization

$$(2)\ \text{WLD HIRE} = \frac{\text{Number of Agricultural Businesses in Texas (27,148)}}{\text{Number of Agricultural Businesses Responding to Survey (245)}} \times \text{Number of Responses Indicating They Would Hire a Vo-Ag Trained Person in a Job Title}$$

Since the first six job titles represented self-employment, employers were not asked to respond to them. So, as an example of the population estimate for a particular job title, here is an interpretation of the data for a "diversified crop and livestock farmhand": Approximately 2,549 businesses in Texas have employees with this job title, while about 1,995 businesses would be willing to hire an entry-level employee trained through Vocational Agriculture.

The identification of emerging jobs for Vocational Agriculture graduates was done by analyzing the status of placements relative to the total job market. This analysis involved the calculation of a ratio of "total placements" via Vocational Agriculture departments to the total number of businesses that would consider hiring a person trained in Vocational Agriculture. This ratio (placement/"would hire") was designated the "Total Potential Placement Ratio" (TPPR). The data from each job title on the survey were also used to calculate a ratio of placements to "would hire" for that particular job title; this ratio was named the "Potential Placement Ratio" (PPR). To determine those jobs that had a more "favorable" placement ratio, the TPPR was subtracted from each PPR. The result was called the "Potential Placement Status" (PPS). The PPS's were then ranked in ascending order. Jobs listed at the beginning of Table 2 on pages 26 to 30 , should have a "more favorable" placement potential that those listed near the end of the table. That is, jobs listed first have had relatively few placements in comparison to the opportunities for placement ("would hires"). On the other hand, job titles listed last have had a relatively large number of placements compared to the number of "would hire" indications.

The TPPR was calculated to be .2048229. The formula used to calculate this value was:

$$TPPR = \frac{\text{Total Placements in Texas}}{\text{Total Would Hire in Texas}} = .2048$$

The formula for calculating each PPR was:

$$PPR = \frac{\text{Total Placements in a Job Title}}{\text{Total Would Hire in the Job Title}}$$

The formula for calculating each PPS was:

PPS = PPR - TPPR.

JOB CODE REFERENCE

A letter prefix has been assigned each job on the following tables. To determine which category a job belongs to, you should refer to the following list. (This list will be used to identify the various categories in Tables 1 to 5.)

A = Self-Employed Individuals

B = Agricultural Production

C = Agricultural Products

D = Agricultural Supply and Service

E = Agricultural Mechanics

F = Forestry

G = Horticulture

H = Renewable Natural Resources

I = Agricultural Quality Determination

J = Agricultural Sales

K = Other Agriculture

For example, the first job listed in Table 1 is: [A - Full Ownership.] (On the list above, "A" represents "Self Employed Individuals".)

In Table 1, jobs with a letter prefix of "I" or "J" are general job titles that exist in many types of agricultural business. In Table 2, each general job title is divided into specific job titles based on the types of agricultural businesses (SIC's) indicating the general job title exists in their organizations. For example, in Table 1, on page 24 (#I-1) "BUYER" was the general job title to which a business could respond. Then in Table 2, on page 27 (#58), "LIVESTOCK BUYER", which is a more specific job title, is used because businesses dealing primarily in livestock indicated that the general job title "BUYER" existed in their organizations.

TABLE 1

TOTAL RESPONSES BY TEACHERS AND BUSINESSES*
TO SURVEY VARIABLES RELATED TO JOB TITLES

DUTY=SELF EMPLOYED INDIVIDUALS

OBS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
1	A1	FULL OWNERSHIP (PROD. AG. & CUSTOM OPERATION)	134	334	62	530	.	.
2	A2	PARTNERSHIP (PROD. AG. & CUSTOM OPERATION)	164	426	82	672	.	.
3	A3	FAMILY OPERATION (PROD. AG. & CUSTOM OPERATION)	194	534	120	848	.	.
4	A4	FULL OWNERSHIP (AGRIBUSINESS)	64	146	28	238	.	.
5	A5	PARTNERSHIP (AGRIBUSINESS)	100	192	26	318	.	.
6	A6	FAMILY BUSINESS (AGRIBUSINESS)	142	286	60	488	.	.

DUTY=AGRICULTURAL PRODUCTION

OBS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
7	B1	DIVERSIFIED CROP AND LIVESTOCK FARMHAND	198	468	72	738	2548.68	1994.62
8	B2	CERTIFIED SEED FARMHAND	22	54	16	92	775.69	664.87
9	B3	DIVERSIFIED CROP FARMHAND	134	300	42	476	1883.81	1440.56
10	B4	FIELD CROP FARMHAND	112	276	52	440	2659.49	1994.62
11	B5	FORAGE CROP FARMHAND	56	144	26	226	997.31	664.87
12	B6	FRUIT AND BERRY FARMHAND	20	36	12	68	110.81	110.81
13	B7	GRAIN FARMHAND	86	216	38	340	2216.24	1773.00
14	B8	TREE CROP FARMHAND	20	64	24	108	997.31	997.31
15	B9	VEGETABLE FARMHAND	24	94	30	148	775.69	775.69
16	B10	BEEKEEPER (APIARIST)	18	66	12	96	886.50	775.69
17	B11	BEEF CATTLE PRODUCTION HAND	226	532	72	830	2881.12	1551.37
18	B12	BEEF FEEDLOT HAND	78	154	24	256	1218.93	775.69
19	B13	BROILER PRODUCTION HAND	22	70	8	100	221.62	332.44
20	B14	DAIRY PRODUCTION HAND	108	198	16	322	443.25	554.06
21	B15	MILKER, MACHINE	56	96	12	164	443.25	221.62
22	B16	DIVERSIFIED LIVESTOCK HAND	156	370	48	574	2327.06	1329.75
23	B17	EGG PRODUCTION WORKER	48	70	2	120	221.62	110.81
24	B18	FISH FARM WORKER	12	26	4	42	110.81	110.81
25	B19	FISH HATCHERY WORKER	4	10	4	18	110.81	110.81
26	B20	GOAT PRODUCTION HAND	12	42	8	62	221.62	110.81
27	B21	HORSE PRODUCTION HAND	148	258	28	434	664.87	221.62
28	B22	POULTRY HATCHERY WORKER	18	32	6	56	332.44	221.62
29	B23	CAPONIZER	0	8	2	10	0.00	0.00
30	B24	CHICK CULLER	6	6	2	14	221.62	221.62
31	B25	CHICK SEXER	4	6	0	10	110.81	110.81
32	B26	INSEMINATOR	4	30	0	34	332.44	110.81
33	B27	SHEEP FEEDLOT HAND	6	34	6	46	443.25	221.62
34	B28	SHEEP PRODUCTION HAND	18	88	12	118	332.44	332.44
35	B29	SWINE FEEDLOT HAND	52	140	16	208	332.44	221.62
36	B30	SWINE PRODUCTION HAND	76	248	36	360	332.44	110.81
37	B31	TURKEY PRODUCTION WORKER	10	34	4	48	110.81	110.81

*See page 18 for letter prefix reference.

TABLE 1 CONT.

DUTY=AGRICULTURAL PRODUCTS

OHS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
38	C1	COTTON GIN MACHINE OPERATOR	24	98	16	138	664.87	664.87
39	C2	COTTON SAMPLER	4	10	6	20	554.06	443.25
40	C3	COTTON WEIGHER	8	40	6	54	443.25	332.44
41	C4	FLEECE TIER	2	10	4	16	110.81	110.81
42	C5	GINNER'S ASSISTANT	14	68	12	94	554.06	443.25
43	C6	SHEEP SHEARER	4	42	12	58	332.44	221.62
44	C7	WOOL SACKER	6	34	8	48	221.62	0.00
45	C8	BUTTER MAKER'S ASSISTANT	4	6	2	12	110.81	221.62
46	C9	CHEESE BLENDER'S ASSISTANT	2	4	2	8	110.81	221.62
47	C10	CREAM SEPARATOR'S ASSISTANT	0	6	0	6	110.81	221.62
48	C11	DAIRY PROCESSING HELPER	30	30	6	66	332.44	332.44
49	C12	DAIRY PROCESSING MACHINE OPERATOR	14	24	4	42	221.62	332.44
50	C13	DAIRY PRODUCTS DELIVERY PERSON	20	52	8	80	443.25	221.62
51	C14	FLAVOR ROOM WORKER	4	8	2	14	110.81	110.81
52	C15	HOMOGENIZER'S ASSISTANT	6	10	2	18	0.00	0.00
53	C16	ICE CREAM MAKER'S ASSISTANT	14	8	2	24	110.81	110.81
54	C17	KOSHER INSPECTOR'S ASSISTANT	2	4	2	8	0.00	0.00
55	C18	MILK STERILIZER'S ASSISTANT	6	6	2	14	0.00	0.00
56	C19	NOVELTY MAKER (DAIRY PRODUCTS)	4	10	2	16	0.00	0.00
57	C20	PASTEURIZER'S ASSISTANT (DAIRY PRODUCTS)	8	14	2	24	221.62	221.62
58	C21	EGG CANDLER	18	44	4	66	110.81	0.00
59	C22	COOLER ROOM WORKER (EGG)	10	24	4	38	332.44	221.62
60	C23	EGG DELIVERY PERSON	18	32	4	54	221.62	110.81
61	C24	EGG PACKAGER	10	40	2	52	110.81	0.00
62	C25	EGG PROCESSING MACHINE TENDER	12	22	2	36	110.81	110.81
63	C26	EGG PROCESSING WORKER	20	26	4	50	0.00	0.00
64	C27	FISH AND SEAFOOD DELIVERY PERSON	12	14	4	30	443.25	221.62
65	C28	FISH AND SEAFOOD PROCESSING HELPER	14	12	6	32	332.44	221.62
66	C29	FISH AND SEAFOOD PROCESSING MACHINE OPER	4	2	4	10	221.62	110.81
67	C30	FISH CLEANER-SCALER	6	4	4	14	332.44	221.62
68	C31	FISH FILLETER	6	4	2	12	332.44	221.62
69	C32	SEAFOOD BUTCHER	6	4	2	12	332.44	332.44
70	C33	SHELLFISH SHUCKER	4	2	0	6	221.62	110.81
71	C34	MULTER'S ASSISTANT (GRAIN)	6	10	6	22	554.06	332.44
72	C35	BULK GRAIN HAULER	54	180	30	264	2105.43	886.50
73	C36	FEED MIXER'S ASSISTANT	102	198	22	322	1108.12	775.69
74	C37	GRAIN ELEVATOR ASSISTANT CLERK	30	78	10	118	775.69	664.87
75	C38	GRAIN ELEVATOR OPERATOR	40	110	14	164	1994.62	1662.18
76	C39	GRAIN PROCESSING HELPER	64	120	18	202	1440.56	1108.12
77	C40	GRAIN PROCESSING MACHINE OPERATOR	26	64	4	94	1329.75	997.31
78	C41	MILLER'S ASISTANT (GRAIN)	12	30	2	44	554.06	554.06
79	C42	HIDE HANDLER	10	28	2	40	221.62	110.81
80	C43	HIDE PROCESSING HELPER	4	24	2	30	110.81	110.81
81	C44	HIDE TRIMMER	2	12	0	14	110.81	110.81
82	C45	WOOL PULLER	2	2	0	4	0.00	0.00
83	C46	CORN DECAPPER	4	8	0	12	221.62	110.81
84	C47	HONEY BLENDER'S ASSISTANT	4	2	2	8	110.81	221.62
85	C48	HONEY PROCESSING MACHINE OPERATOR	4	8	0	12	221.62	221.62
86	C49	BREAKING HOUSE WORKER	14	30	6	50	443.25	221.62
87	C50	COOLER ROOM WORKER (MEAT PROCESSING)	68	124	26	218	886.50	775.69
88	C51	CURING-SMOKING ASSISTANT	40	68	14	122	332.44	332.44
89	C52	KILL FLOOR WORKER (MEAT PROCESSING)	86	134	28	248	332.44	221.62
90	C53	MEAT DELIVERY PERSON	44	78	16	138	775.69	443.25
91	C54	MEAT PROCESSING HELPER	166	222	34	422	886.50	554.06

TABLE 1 CONT.

DUTY=AGRICULTURAL PRODUCTS

OBS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
92	C55	MEAT PROCESSING MACHINE OPERATOR	56	98	20	174	1218.93	775.69
93	C56	MEATCUTTER'S ASSISTANT	130	204	46	380	1218.93	775.69
94	C57	SAUSAGE MAKER'S ASSISTANT	44	72	18	134	664.87	332.44
95	C58	SHACTOR'S ASSISTANT	2	2	0	4	110.81	110.81
96	C59	TANK HOUSE WORKER (MEAT PROCESSING)	6	18	0	24	332.44	332.44
97	C60	NUT PACKAGER	2	10	2	14	110.81	110.81
98	C61	NUT PROCESSING HELPER	8	10	4	22	0.00	0.00
99	C62	NUT PROCESSING MACHINE OPERATOR	4	16	2	22	332.44	332.44
100	C63	POULTRY BONER	2	12	0	14	221.62	332.44
101	C64	COOLER ROOM WORKER (POULTRY)	6	24	2	32	554.06	443.25
102	C65	POULTRY CUTTER	14	26	0	40	443.25	332.44
103	C66	POULTRY DRESSER	14	36	4	54	443.25	332.44
104	C67	POULTRY PACKAGER	12	30	8	50	443.25	443.25
105	C68	POULTRY TANKMAN	6	10	0	16	443.25	443.25
106	C69	PROCESSED POULTRY DELIVERY PERSON	6	24	4	34	332.44	332.44
107	C70	PRODUCE FIELD HAULER	20	86	16	122	664.87	443.25
108	C71	PACKAGED PRODUCE DELIVERY PERSON	16	36	10	62	554.06	332.44
109	C72	PRODUCE PROCESSING HELPER	28	52	6	86	1218.93	997.31
110	C73	PRODUCE PROCESSING MACHINE OPERATOR	8	26	4	38	997.31	775.69
111	C74	PRODUCE PROCESSING PACKAGER	16	36	2	54	1218.93	886.50
112	C75	SEED CLEANER	28	58	10	96	997.31	775.69
113	C76	SEED PACKAGER	18	36	4	58	886.50	775.69
114	C77	SEED PROCESSING MACHINE OPERATOR	16	42	6	64	886.50	1218.93

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DUTY=AGRICULTURAL SUPPLY AND SERVICE

OBS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
115	D1	AGRI-CHEMICAL APPLICATOR	68	180	38	286	3989.24	2327.06
116	D2	AGRI-CHEMICAL FIELD TECHICIAN (SCOUT)	24	74	16	114	1773.00	1440.56
117	D3	AGRI-CHEMICAL SUPPLY AND SERVICE HELPER	96	198	28	322	2437.87	1994.62
118	D4	INTEGRATED PEST MANAGEMENT AIDE	16	38	12	66	1662.18	1218.93
119	D5	TO FARM AGRI-CHEMICAL DELIVERY PERSON	32	116	14	162	886.50	443.25
120	D6	CROP DUSTER, PILOT	4	48	2	54	997.31	110.81
121	D7	AGRICULTURAL FLYING SERVICE GROUNDMAN	14	62	10	86	886.50	664.87
122	D8	AGRICULTURAL FLYING SERVICE HELPER	18	68	16	102	886.50	775.69
123	D9	BATCH MIXER-WEIGHER (FERTILIZER)	34	78	16	128	1329.75	997.31
124	D10	FERTILIZER APPLICATOR	70	220	24	314	3989.24	2437.87
125	D11	FERTILIZER SUPPLY AND SERVICE HELPER	118	218	28	364	2327.06	1551.37
126	D12	TO FARM FERTILIZER DELIVERY PERSON	82	192	20	294	2105.43	886.50
127	D13	ARTIFICIAL INSEM/PALPATION ASSISTANT	54	166	16	236	554.06	332.44
128	D14	FEED STORE HELPER	232	374	70	676	1883.81	1440.56
129	D15	HORSESHOER (FARRIER)	54	114	8	176	554.06	221.62
130	D16	HORSETRAINER	114	202	14	330	443.25	221.62
131	D17	LIVESTOCK AUCTION WORKER	118	306	46	470	664.87	443.25
132	D18	LIVESTOCK GROOMER-SHOWER	52	202	14	268	775.69	332.44
133	D19	LIVESTOCK HAULER	86	306	42	434	1551.37	775.69
134	D20	POULTRY HAULER	8	30	2	40	332.44	332.44
135	D21	TO FARM FEED DELIVERY PERSON	90	156	24	270	1108.12	664.87
136	D22	VETERINARY ASSISTANT	184	230	14	428	3435.18	2548.68
137	D23	SEED FIELD TECHNICIAN	4	12	2	18	554.06	443.25
138	D24	SEED SUPPLY AND SERVICE HELPER	64	100	20	184	997.31	775.69
139	D25	TO FARM SEED DELIVERY PERSON	34	86	10	130	1108.12	886.50

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DUTY=AGRICULTURAL SUPPLY AND SERVICE

OBS	JUNITITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
140	D26	DOG GROOMER	22	22	0	44	1440.56	997.31
141	D27	KENNEL WORKER	38	42	0	80	1994.62	1551.37
142	D28	LABORATORY ANIMAL CARETAKER	32	24	0	56	443.25	332.44
143	D29	PET STORE WORKER	20	10	0	30	332.44	110.81
144	D30	TO FARM AG FUEL DELIVERY PERSON	42	148	20	210	443.25	221.62

DUTY=AGRICULTURAL MECHANICS

OBS	JUNITITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
145	E1	AGRICULTURAL CARPENTER	130	374	114	618	1883.81	1329.75
146	E2	AGRICULTURAL CONCRETE OR BRICK WORKER	66	198	42	306	1108.12	775.69
147	E3	AGRICULTURAL ELECTRICIAN	110	310	80	500	2437.87	1662.18
148	E4	AG FACILITIES CONSTRUCTION WORKER	84	224	60	368	1551.37	1108.12
149	E5	AG FACILITIES MAINTENANCE WORKER	60	124	38	222	3545.99	2437.87
150	E6	AGRICULTURAL FENCE BUILDER	88	222	46	356	2548.68	1329.75
151	E7	AGRICULTURAL PLUMBER	56	136	46	238	1883.81	1329.75
152	E8	AG PROCESSING EQUIPMENT SERVICE PERSON	38	56	10	104	1662.18	1218.93
153	E9	ARTIFICAL INSEM EQUIPMENT SERVICE PERSON	12	28	4	44	221.62	221.62
154	E10	DAIRY EQUIPMENT SERVICE PERSON	14	36	6	56	110.81	110.81
155	E11	ELECTRIC MOTOR MECHANIC	26	74	22	122	1551.37	886.50
156	E12	FARM EQUIPMENT MECHANIC	188	346	136	670	6316.30	4654.11
157	E13	FARM EQUIPMENT SET-UP MECHANIC	126	170	66	362	3767.62	2881.12
158	E14	FARM IRRIGATION EQUIPMENT SERVICE PERSON	42	44	8	94	1662.18	1108.12
159	E15	GOLFCOURSE EQUIPMENT SERVICE PERSON	48	34	14	96	886.50	554.06
160	E16	HAND AND POWERTOOL EQUIP SERVICE PERSON	32	60	32	124	1662.18	1329.75
161	E17	HORTICULTURAL EQUIPMENT SERVICE PERSON	32	36	10	78	443.25	110.81
162	E18	HYDRAULICS MECHANIC	18	52	32	102	3435.18	2659.49
163	E19	LAWN SPRINKLER EQUIPMENT SERVICE PERSON	18	20	6	44	1329.75	775.69
164	E20	LIVESTOCK EQUIPMENT SERVICE PERSON	40	104	18	162	886.50	332.44
165	E21	LOGGING EQUIPMENT SERVICE PERSON	12	28	14	54	443.25	443.25
166	E22	MOTORBOAT MECHANIC	14	38	18	70	554.06	332.44
167	E23	OUTBOARD MOTOR MECHANIC	8	46	14	68	443.25	332.44
168	E24	POULTRY HATCHERY EQUIP SERVICE PERSON	4	8	0	12	332.44	332.44
169	E25	RECREATIONAL VEHICLE MECHANIC	8	30	18	56	775.69	332.44
170	E26	SMALL ENGINES MECHANIC	78	254	116	448	3545.99	2881.12
171	E27	AGRICULTURAL EQUIPMENT DESIGNER	2	30	6	38	775.69	332.44
172	E28	AGRICULTURAL EQUIPMENT DRAFTSMAN	4	22	8	34	443.25	221.62
173	E29	AGRICULTURAL EQUIPMENT OPERATOR	68	194	68	330	3545.99	2105.43
174	E30	AGRICULTURAL FACILITIES DESIGNER	0	8	2	10	554.06	332.44
175	E31	AGRICULTURAL FACILITIES DRAFTSMAN	2	14	2	18	775.69	332.44
176	E32	AGRICULTURAL SURVEYOR HELPER	50	98	22	170	443.25	554.06
177	E33	AGRICULTURAL WELDER	198	590	188	976	5651.42	3878.43

TABLE 1 CONT.

DUTY=FORESTRY

OBS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
178	F1	CHRISTMAS TREE FARM WORKER	6	12	2	20	110.812	110.812
179	F2	FOREST NURSERY WORKER	8	20	4	32	110.812	0.000
180	F3	FORESTRY AIDE	8	30	8	46	0.000	0.000
181	F4	FORESTRY TECHNICIAN	4	24	6	34	110.812	110.812
182	F5	TREE PLANTER (FORESTRY)	14	40	10	64	332.437	332.437
183	F6	TREE PRUNER (FORESTRY)	6	22	12	40	443.249	332.437
184	F7	WOOD PRODUCER	20	42	20	82	221.624	110.812
185	F8	FIRE WARDEN	2	16	4	22	0.000	0.000
186	F9	FOREST FIRE FIGHTER	6	34	4	44	0.000	0.000
187	F10	FOREST FIRE RANGER	0	14	4	18	110.812	110.812
188	F11	FOREST FIRE SUPPRESSION CREW LEADER	0	8	2	10	110.812	110.812
189	F12	FOREST FIRE SUPPRESSION WORKER	4	10	2	16	0.000	110.812
190	F13	FOREST INSECT RANGER	0	6	2	8	110.812	221.624
191	F14	SMOKE JUMPER	2	0	0	2	0.000	110.812
192	F15	CRUISER	8	18	2	28	221.624	110.812
193	F16	LOG MARKER	12	24	8	44	110.812	110.812
194	F17	LOGGING SKIDDER OPERATOR	20	58	20	98	221.624	221.624
195	F18	SAW MILL WORKER	28	60	24	112	221.624	221.624
196	F19	SAWYER	16	38	12	66	332.437	332.437
197	F20	TREE CUTTING WORKER	24	72	26	122	332.437	332.437

DUTY=HORTICULTURE

OBS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
198	G1	FLORAL CONSULTANT	12	12	10	34	554.06	443.25
199	G2	FLORAL DELIVERY PERSON	34	46	24	104	997.31	443.25
200	G3	FLORAL DESIGNER	18	30	20	68	1108.12	997.31
201	G4	FLOWER ARRANGER	24	48	24	96	1108.12	886.50
202	G5	FLOWER SHOP HELPER	58	74	46	178	1108.12	997.31
203	G6	BALL AND BURLAPPER	14	20	6	40	775.69	554.06
204	G7	BONSAI CULTURIST	4	2	4	10	0.00	0.00
205	G8	FLOWER HARVESTER	2	8	6	16	110.81	110.81
206	G9	GREENHOUSE WORKER	94	120	58	272	1994.62	1440.56
207	G10	MUSHROOM FARM WORKER	8	2	2	12	110.81	110.81
208	G11	NURSERY WORKER	88	86	42	216	1883.81	1662.18
209	G12	PLANT GROWER (FERTILIZE, WATER, ETC.)	46	52	38	136	1994.62	1551.37
210	G13	PLANT PROPAGATOR	26	54	30	110	1662.18	1218.93
211	G14	SOD FARM WORKER	18	24	12	54	110.81	110.81
212	G15	CEMETERY WORKER (LANDSCAPING)	16	28	18	62	110.81	221.62
213	G16	GREENSKEEPER	46	18	20	84	554.06	554.06
214	G17	GROUNDSKEEPER	80	58	30	168	1773.00	1773.00
215	G18	LANDSCAPE ASSISTANT	58	54	32	144	997.31	997.31
216	G19	LANDSCAPE DELIVERY PERSON	28	22	12	62	554.06	332.44
217	G20	LANDSCAPE DRAFTER	4	12	10	26	664.87	554.06
218	G21	LANDSCAPE SERVICE HELPER	44	48	22	114	1440.56	1108.12
219	G22	PARKS MAINTENANCE WORKER (LANDSCAPING)	46	44	28	118	775.69	332.44
220	G23	TREE SURGEON/PRUNER/SPRAYER	14	24	20	58	1218.93	997.31
221	G24	GARDEN CENTER WORKER	88	100	36	224	1551.37	1440.56
222	G25	PLANT MAINTENANCE SERVICE WORKER	16	22	24	62	1329.75	886.50
223	G26	PLANT STORE WORKER	38	48	30	116	1329.75	997.31

TABLE 1 CONT.

DUTY=RENEWABLE NATURAL RESOURCES

OBS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
224	41	AIR POLLUTION CONTROL INSPECTOR	0	4	0	4	110.81	110.812
225	42	AIR POLLUTION CONTROL TECHNICIAN	4	4	0	8	221.62	110.812
226	43	FISH CONSERVATION AIDE	4	2	2	8	110.81	110.812
227	44	FISH HATCHERY WORKER	8	10	6	24	221.62	221.624
228	45	FISH RESEARCH TECHNICIAN	6	2	2	10	221.62	221.624
229	46	LAND USE PLANNING AIDE	8	16	4	28	664.87	554.061
230	47	LAND USE PLANNING TECHNICIAN	2	10	4	16	221.62	221.624
231	48	ZONING COMPLIANCE OFFICER	0	2	0	2	0.00	110.812
232	49	COMMERCIAL FISHERMAN	10	24	16	50	221.62	110.812
233	410	FISHERIES TECHNICIAN	2	0	2	4	110.81	221.624
234	411	BOTANICAL GARDEN/ARBORETUM WORKER	2	0	4	6	332.44	443.249
235	412	CAMPGROUND MAINTENANCE WORKER	12	40	8	60	110.81	221.624
236	413	CAMPGROUND MANAGER	6	16	2	24	110.81	221.624
237	414	GAME AND HUNTING FARM WORKER	10	32	10	52	332.44	332.437
238	415	ANIMAL CARETAKER	46	72	10	128	554.06	332.437
239	416	HUNTING AND FISHING GUIDE	10	32	12	54	554.06	443.249
240	417	PARK AIDE (RECREATION)	22	24	10	56	221.62	221.624
241	418	PARK MAINTENANCE PERSON (RECREATION)	18	44	12	74	221.62	221.624
242	419	PARK PATROL OFFICER	0	12	2	14	110.81	110.812
243	420	PARK RANGER	2	18	2	22	110.81	110.812
244	421	RECREATION FARM WORKER	12	18	6	36	332.44	332.437
245	422	TAXIDERMIST	12	36	8	56	110.81	110.812
246	423	ZOO OR AQUARIA WORKER	4	2	2	8	110.81	110.812
247	424	SOIL CONSERVATION AIDE	28	96	10	134	1108.12	554.061
248	425	SOIL CONSERVATION TECHNICIAN	16	70	4	90	664.87	443.249
249	426	WASTE WATER TECHNICIAN	4	12	4	20	443.25	332.437
250	427	WATER TREATMENT PLANT OPFICER	8	22	4	34	221.62	221.624
251	428	WATERSHED CONSERVATION AIDE	12	20	4	36	443.25	221.624
252	429	WATERSHED CONSERVATION TECHNICIAN	8	16	0	24	332.44	110.812
253	430	FUR BUYER	10	36	0	46	110.81	110.812
254	431	PREDATORY ANIMAL HUNTER	36	142	24	202	664.87	332.437
255	432	WILDLIFE CONSERVATION AIDE	4	30	4	38	332.44	110.812
256	433	WILDLIFE CONSERVATION OFFICER'S ASSISTANT	2	8	0	10	110.81	110.812
257	434	WILDLIFE CONSERVATION TECHNICIAN	2	20	6	28	110.81	110.812

DUTY=AG. PRODUCT QUALITY DETERMINATION

OBS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
258	11	BUYER	.	.	.	.	1440.56	443.249
259	12	CLASSER	.	.	.	.	221.62	221.624
260	13	CULLER	.	.	.	.	221.62	221.624
261	14	GRADER	.	.	.	.	775.69	332.437
262	15	INSPECTOR	.	.	.	.	664.87	554.061
263	16	LABORATORY WORKER	.	.	.	.	997.31	886.498
264	17	SANITATION WORKER	.	.	.	.	554.06	443.249
265	18	SORTER	.	.	.	.	110.81	110.812

TABLE 1 CONT.

DUTY=AGRICULTURAL SALES

OBS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
266	J1	AUCTIONEER	.	.	.	.	443.25	332.44
267	J2	CASHIER	.	.	.	.	1440.56	775.69
268	J3	CLERK	.	.	.	.	2991.93	2216.24
269	J4	COUNTER PERSON	.	.	.	.	4210.86	3656.80
270	J5	COMMISSION AGENT	.	.	.	.	775.69	443.25
271	J6	SALES PERSON	.	.	.	.	4986.55	3326.37
272	J7	SALES REPRESENTATIVE	.	.	.	.	2659.49	1440.56

DUTY=OTHER AGRICULTURE

OBS	JOBTITLE		COOP	PRODUCT	PRELAB	SUM	EXISTING	WLD_HIRE
273	K1	AGRICULTURAL COMPUTER WORKER	8	32	2	42	2437.87	1883.81
274	K2	AGRICULTURAL IMPORT AND EXPORT WORKER	2	16	2	20	775.69	443.25
275	K3	AGRICULTURAL LOAN OFFICER ASSISTANT	14	102	0	116	775.69	332.44
276	K4	AGRICULTURAL PUBLICATIONS WORKER	12	30	2	44	221.62	110.81
277	K5	AGRICULTURAL REAL ESTATE WORKER	18	88	10	116	775.69	443.25
278	K6	AGRICULTURAL SCIENTIST ASSISTANT	10	20	0	30	443.25	443.25

TABLE 2

Jobs ranked in ascending order by the differences between each PPR and the TPPR.*

		PPS
1	H - Botanical Garden/Arboretum Worker	-0.19129
2	J - Farm Machinery and Equipment Counter Person	-0.19021
3	F - Smoke Jumper	-0.18677
4	H - Zoning Compliance Officer	-0.18677
5	J - Horticultural Supply Clerk	-0.18677
6	H - Fisheries Technician	-0.18677
7	J - Farm Machinery and Equipment Sales Person	-0.18465
8	K - Agricultural Computer Worker	-0.18253
9	C - Cream Separator's Assistant	-0.17775
10	E - Agricultural Facilities Designer	-0.17474
11	C - Seafood Butcher	-0.16873
12	E - Poultry Hatchery Equipment Service Person	-0.16873
13	C - Poultry Tankman	-0.16873
14	C - Shactor's Assistant	-0.16873
15	H - Air Pollution Control Inspector	-0.16873
16	C - Cheese Blender's Assistant	-0.16873
17	C - Honey Blender's Assistant	-0.16873
18	F - Forest Insect Ranger	-0.16873
19	J - Grain Clerk	-0.16873
20	E - Hydraulics Mechanic	-0.16647
21	D - Seed Field Technician	-0.16421
22	C - Poultry Boner	-0.16271
23	J - Meat Clerk	-0.16271
24	D - Dog Groomer	-0.16070
25	K - Agricultural Import and Export Worker	-0.15970
26	C - Cotton Sampler	-0.15970
27	H - Fish Research Technician	-0.15970
28	G - Landscape Drafter	-0.15790
29	C - Produce Processing Machine Operator	-0.15583
30	H - Land Use Planning Aide	-0.1542
31	D - Kennel Worker	-0.15326
32	C - Seed Processing Machine Operator	-0.15232
33	E - Agricultural Facilities Draftsman	-0.15068
34	D - Integrated Pest Management Aide	-0.15068
35	C - Shellfish Shucker	-0.15068
36	C - Fish Filleter	-0.15068
37	C - Honey Processing Machine Operator	-0.15068
38	C - Butter Maker's Assistant	-0.15068
39	J - Farm Machinery and Equipment Cashier	-0.15068
40	E - Lawn Sprinkler Equipment Service Person	-0.14810
41	G - Tree Surgeon/Pruner/Sprayer	-0.14667
42	H - Waste Water Technician	-0.14466
43	C - Produce Processing Packager	-0.14391
44	C - Fish Cleaner-Scaler	-0.14165
45	B - Chick Culler	-0.14165
46	C - Bolter's Assistant (Grain)	-0.13864
47	C - Nut Processing Machine Operator	-0.13864
48	K - Agricultural Scientist Assistant	-0.13714
49	G - Floral Designer	-0.13664

*See page 18 for letter prefix references.

TABLE 2 CONT.

		PPS
50	G - Plant Maintenance Service Worker	-0.13488
51	C - Tank House Worker (Meat Processing)	-0.13263
52	C - Cooler Room Worker (Poultry)	-0.13263
53	G - Ball and Burlapper	-0.13263
54	H - Air Pollution Control Technician	-0.13263
55	H - Fish Conservation Aide	-0.13263
56	H - Land Use Planning Technician	-0.13263
57	H - Zoo Or Aquaria Worker	-0.13263
58	I - Livestock Buyer	-0.13263
59	C - Seed Packager	-0.13005
60	G - Floral Consultant	-0.12812
61	D - Agri-Chemical Field Technician (Scout)	-0.12569
62	C - Miller's Assistant (Grain)	-0.12541
63	J - Farm Machinery and Equipment Commission Agent	-0.12360
64	J - Horticultural Supply Counter Person	-0.12360
65	E - Farm Irrigation Equipment Service Person	-0.11999
66	E - Ag Processing Equipment Service Person	-0.11950
67	C - Produce Processing Helper	-0.11859
68	G - Plant Grower (Fertilize, Water, Etc.)	-0.11716
69	G - Plant Propagator	-0.11458
70	C - Fish and Seafood Processing Machine Operator	-0.11458
71	B - Chick Sexer	-0.11458
72	F - Forest Fire Suppression Crew Leader	-0.11458
73	H - Wildlife Conservation Officer's Assistant	-0.11458
74	J - Livestock Commission Agent	-0.11458
75	I - Grain Classer	-0.11458
76	E - Ag Facilities Maintenance Worker	-0.11376
77	J - Farm Machinery and Equipment Clerk	-0.11232
78	E - Hand and Powertool Equip Service Person	-0.11157
79	C - Grain Processing Machine Operator	-0.11057
80	G - Groundskeeper	-0.11007
81	C - Grain Elevator Operator	-0.10616
82	I - Grain Grader	-0.10554
83	J - Livestock Auctioneer	-0.10554
84	J - Pet Supply Counter Person	-0.10554
85	C - Processed Poultry Delivery Person	-0.10255
86	G - Landscape Service Helper	-0.10195
87	H - Recreation Farm Worker	-0.09653
88	G - Flower Arranger	-0.09653
89	B - Tree Crop Farmhand	-0.09653
90	C - Comb Decapper	-0.09653
91	C - Pasteurizer's Assistant (Dairy Products)	-0.09653
92	G - Mushroom Farm Worker	-0.09653
93	H - Fish Hatchery Worker (Conservation)	-0.09653
94	H - Campground Manager	-0.09653
95	C - Poultry Packager	-0.09202
96	E - Agricultural Equipment Designer	-0.09052
97	G - Plant Store Worker	-0.08851
98	C - Poultry Cutter	-0.08450
99	F - Tree Pruner (Forestry)	-0.08450
100	D - Poultry Hauler	-0.08450
101	H - Hunting and Fishing Guide	-0.08300

TABLE 2 CONT.

		PPS
102	E - Logging Equipment Service Person	-0.08300
103	D - Agri-Chemical Applicator	-0.08192
104	C - Seed Cleaner	-0.08106
105	B - Beekeeper (Apiarist)	-0.08106
106	E - Farm Equipment Set-Up Mechanic	-0.07918
107	C - Dairy Processing Machine Operator	-0.07848
108	C - Flavor Room Worker	-0.07848
109	C - Hide Trimmer	-0.07848
110	C - Nut Packager	-0.07848
111	H - Park Patrol Officer	-0.07848
112	D - Batch Mixer-Weigher (Fertilizer)	-0.07648
113	D - Fertilizer Applicator	-0.07602
114	D - Agricultural Flying Service Groundsman	-0.07547
115	G - Nursery Worker	-0.07487
116	D - Agricultural Flying Service Helper	-0.07333
117	C - Fish And Seafood Delivery Person	-0.06946
118	E - Electric Motor Mechanic	-0.06720
119	B - Certified Seed Farmhand	-0.06645
120	E - Farm Equipment Mechanic	-0.06086
121	G - Landscape Assistant	-0.06043
122	C - Fish And Seafood Processing Helper	-0.06043
123	F - Forest Fire Suppression Worker	-0.06043
124	C - Fleece Tier	-0.06043
125	G - Flower Harvester	-0.06043
126	D - To Farm Seed Delivery Person	-0.05818
127	G - Greenskeeper	-0.05322
128	E - Agricultural Equipment Draftsman	-0.05141
129	H - Water Treatment Plant Officer	-0.05141
130	E - Small Engines Mechanic	-0.04933
131	G - Garden Center Worker	-0.04933
132	H - Game And Hunting Farm Worker	-0.04840
133	J - Horticultural Supply Sales Person	-0.04840
134	E - Agricultural Equipment Operator	-0.04809
135	D - Agri-Chemical Supply and Service Helper	-0.04339
136	C - Cotton Weigher	-0.04239
137	C - Poultry Dresser	-0.04239
138	H - Watershed Conservation Aide	-0.04239
139	B - Fish Hatchery Worker (Auquculture)	-0.04239
140	F - Forest Fire Ranger	-0.04239
141	D - Veterinary Assistant	-0.03689
142	E - Recreational Vehicle Mechanic	-0.03637
143	D - Laboratory Animal Caretaker	-0.03637
144	C - Cooler Room Worker (Egg)	-0.03336
145	J - Grain Sales Person	-0.03336
146	E - Golfcourse Equipment Service Person	-0.03155
147	C - Grain Elevator Assistant Clerk	-0.02734
148	G - Flower Shop Helper	-0.02634
149	E - Agricultural Plumber	-0.02584
150	F - Christmas Tree Farm Worker	-0.02433
151	C - Grain Processing Helper	-0.02253
152	C - Packaged Produce Delivery Person	-0.01832
153	G - Landscape Delivery Person	-0.01832
154	G - Greenhouse Worker	-0.01600

TABLE 2 CONT.

		PPS
155	B - Vegetable Farmhand	-0.01402
156	B - Grain Farmhand	-0.01305
157	F - Tree Planter (Forestry)	-0.01230
158	C - Dairy Processing Helper	-0.00628
159	F - Sawyer	-0.00628
160	E - Artificial Insemination Equipment Service Person	-0.00628
161	H - Park Ranger	-0.00628
162	I - Livestock Laboratory Worker	-0.00628
163	H - Soil Conservation Technician	-0.00177
164	E - Outboard Motor Mechanic	-0.00027
165	C - Cotton Gin Machine Operator	0.00273
166	B - Sheep Feedlot Hand	0.00273
167	E - Motorboat Mechanic	0.00574
168	C - Ginner's Assistant	0.00724
169	H - Watershed Conservation Technician	0.01176
170	C - Ice Cream Maker's Assistant	0.01176
171	B - Field Crop Farmhand	0.01577
172	C - Meat Processing Machine Operator	0.01949
173	C - Breaking House Worker	0.02078
174	J - Produce Sales Person	0.02433
175	G - Floral Delivery Person	0.02980
176	D - Fertilizer Supply and Service Helper	0.02980
177	I - Cotton Culler	0.02980
178	D - Seed Supply and Service Helper	0.03238
179	H - Soil Conservation Aide	0.03702
180	E - Agricultural Welder	0.04682
181	F - Cruiser	0.04785
182	B - Poultry Hatchery Worker	0.04785
183	H - Park Aide (Recreation)	0.04785
184	H - Wildlife Conservation Technician	0.04785
185	K - Agricultural Real Estate Worker	0.05688
186	C - Sheep Shearer	0.05688
187	E - Agricultural Fence Builder	0.06289
188	D - Pet Store Worker	0.06590
189	C - Hide Processing Helper	0.06590
190	H - Campground Maintenance Worker	0.06590
191	C - Produce Field Hauler	0.07041
192	G - Cemetery Worker (Landscaping)	0.07493
193	C - Cooler Room Worker (Meat Processing)	0.07621
194	C - Bulk Grain Hauler	0.09297
195	B - Broiler Production Hand	0.09598
196	E - Agricultural Electrician	0.09598
197	E - Agricultural Surveyor Helper	0.10200
198	B - Inseminator (Hatchery)	0.10200
199	F - Forestry Technician	0.10200
200	J - Horticultural Supply Cashier	0.10200
201	C - Meat Delivery Person	0.10651
202	J - Meat Counter Person	0.10856
203	C - Egg Processing Machine Tender	0.12005
204	B - Beef Feedlot Hand	0.12520
205	B - Diversified Crop Farmhand	0.12560
206	B - Sheep Production Hand	0.12606

TABLE 2 CONT.

		PPS
207	D - To Farm Fertilizer Delivery Person	0.12681
208	E - Ag Facilities Construction Worker	0.12727
209	H - Park Maintenance Person (Recreation)	0.12907
210	B - Forage Crop Farmhand	0.13509
211	H - Wildlife Conservation Aide	0.13810
212	K - Agricultural Loan Officer Assistant	0.14411
213	G - Parks Maintenance Worker (Landscaping)	0.15013
214	C - Hide Handler	0.15614
215	D - To Farm Agri-Chemical Delivery Person	0.16066
216	C - Curing-Smoking Assistant	0.16216
217	F - Tree Cutting Worker	0.16216
218	B - Diversified Crop and Livestock Farmhand	0.16517
219	B - Fish Farm Worker	0.17419
220	H - Animal Caretaker	0.18021
221	E - Agricultural Concrete or Brick Worker	0.18966
222	K - Agricultural Publications Worker	0.19224
223	F - Log Marker	0.19224
224	C - Sausage Maker's Assistant	0.19826
225	D - To Farm Feed Delivery Person	0.20127
226	C - Feed Mixer's Assistant	0.21029
227	H - Fur Buyer	0.21029
228	B - Diversified Livestock Farmhand	0.22683
229	B - Turkey Production Worker	0.22834
230	F - Logging Skidder Operator	0.23736
231	H - Commercial Fisherman	0.24639
232	E - Agricultural Carpenter	0.25992
233	D - Feed Store Helper	0.26439
234	I - Grain Inspector	0.26439
235	E - Livestock Equipment Service Person	0.28248
236	D - Crop Duster, Pilot	0.28248
237	C - Egg Delivery Person	0.28248
238	G - Sod Farm Worker	0.28248
239	J - Grain Counter Person	0.28248
240	C - Meatcutter's Assistant	0.28506
241	E - Dairy Equipment Service Person	0.30053
242	F - Saw Mill Worker	0.30053
243	H - Taxidermist	0.30053
244	B - Beef Cattle Production Hand	0.33018
245	I - Meat Salesperson	0.33664
246	D - Livestock Hauler	0.35468
247	B - Goat Production Hand	0.35468
248	B - Dairy Production Hand	0.37634
249	H - Predatory Animal Hunter	0.40281
250	B - Fruit and Berry Farmhand	0.40882
251	I - Livestock Inspector	0.40882
252	J - Livestock Counter Person	0.40882
253	J - Seed Clerk	0.48104
254	E - Horticultural Equipment Service Person	0.49907
255	D - Artificial Insem/Palpation Assistant	0.50508
256	B - Milker, Machine	0.53516
257	F - Wood Producer	0.53516
258	C - Meat Processing Helper	0.55682

TABLE 2 CONT.

		PPS
259	D - Horseshoer (Farrier)	0.58931
260	D - Livestock Groomer-Shower	0.60134
261	B - Swine Feedlot Hand	0.73370
262	D - To Farm Ag Fuel Delivery Person	0.74272
263	D - Livestock Auction Worker	0.85552
264	B - Egg Production Worker	0.87809
265	C - Kill Floor Worker (Meat Processing)	0.91419
266	D - Horsetrainer	1.28419
267	B - Horse Production Hand	1.75345
268	B - Swine Production Hand	3.04392

As part of the survey process, the Vocational Agriculture teacher and employer respondents were asked to list additonal agricultural jobs not included in the survey documents. In Table 3 are listed job titles added by the teachers. These represent agricultural or agriculturally-related jobs in which teachers had placed students or graduates in the previous three years.

TABLE 3

JOBS ADDED BY TEACHERS*
Jobs That Were Not Listed On Teacher Survey Form

E	Agricultural Machinist
E	Automobile Mechanic
E	Diesel Mechanic
E	Finish Carpenter
E	Gasahol Plant Worker
E	Heavy Equipment Operator
E	Iron Worker
E	Lumber Straightener
E	Oilfield Worker
E	Pipe Welder
E	Saddle Maker/Repairer
E	Sheet Metal Worker
E	Welder's Helper
G	Hydromulcher
G	Indoor Landscaping
J	Hardware Salesperson
J	Veterinary Supply Salesperson
K	Agricultural Communications Worker

*See page 18 for letter prefix references.

Similarly, jobs named in Table 4, on page 33, were added by businesses. These job titles were not listed on the business survey form. Employers, however, indicated that the jobs existed in their organizations and that they would hire Vocational Agriculture trained individuals for these jobs. Neither PPR nor PPS could be computed for the job titles shown in Tables 3 and 4 because responses from both teachers and businesses were needed for calculations.

TABLE 4

JOBS ADDED BY BUSINESS SAMPLE*
Jobs That Were Not Listed On Business Survey Form

C	-	Cotton Checker (Shipping)
C	-	Cotton Warehouseperson
C	-	Dairy Department Worker (Retail Grocery)
C	-	Produce Trimmer and Wrapper (Retail Grocery)
D	-	Veterinary Receptionist/Secretary
E	-	Agricultural Machinery and Equipment Warehouseperson
E	-	Welder's Helper
G	-	Organic Groundsperson
G	-	Organic Horticulture Salesperson
J	-	Agricultural Sales Accountant
J	-	Agribusiness Assistant Manager
J	-	Department Manager (Retail Grocery)
K	-	Agricultural Bookkeeper

* See page 18 for letter prefix references.

Table 5 presents those jobs in which teachers reported placements and businesses reported as existing, but the businesses did not indicate that they would hire Vocational Agriculture trained individuals. Again, PPR and PPS could not be calculated for these jobs.

TABLE 5

JOBS IN WHICH TEACHERS REPORT PLACEMENT AND BUSINESS REPORT AS*
EXISTING BUT WOULD NOT HIRE VOCATIONAL AGRICULTURE TRAINED STUDENTS

I	-	Grain Laboratory Worker
I	-	Horticulture Buyer
I	-	Livestock Clerk
I	-	Livestock Grader
I	-	Meat Buyer
I	-	Meat Grader
I	-	Meat Inspector
I	-	Produce Grader
I	-	Produce Sanitation Worker
J	-	Cotton Clerk
J	-	Cotton Sales Representative
J	-	Grain Sales Representative
J	-	Horticultural Supply Sales Representative
J	-	Livestock Salesperson
J	-	Livestock Sales Representative
J	-	Meat Sales Representative

*See page 18 for letter prefix references.

The data presented in Table 6 show the "location" of Vocational Agriculture programs based on the population of the community where the program operates.

TABLE 6

PERCENTAGE OF VOCATIONAL AGRICULTURE TEACHERS LOCATED WITHIN GIVEN CITY POPULATION RANGES

City Populations	% of Teachers by City Size
0-9,999	77.4%
10,000-49,999	14.2%
50,000-149,999	4.0%
150,000-299,999	.5%
300,000 and over	3.9%

The data in Table 7, and Table 8 on page 35, were collected from Vocational Agriculture teachers. Table 7 presents teachers' years of Vocational Agriculture teaching experience. More than half of the teachers had taught for ten years or less.

TABLE 7

YEARS OF EXPERIENCE TEACHING VOCATIONAL AGRICULTURE

Years	% of Teachers
5 or less	30.5%
6 - 10	24.7%
11 - 15	12.6%
16 - 20	8.4%
21 - 25	7.8%
26 - 30	5.4%
31 - 35	7.7%
36 or more	3.2%

Data in Table 8 indicate the rank ordering of selected factors that teachers of cooperative part-time training in Vocational Agriculture consider most often when evaluating a training station for student placement. Cooperative part-time training coordinators were asked to indicate the five factors they considered most often.

TABLE 8

RANK ORDERING OF THE FACTORS CONSIDERED MOST OFTEN WHEN EVALUATING A JOB FOR COOPERATIVE PART-TIME TRAINING PLACEMENT

	Placement Factors	Number of Responses
1.	Cooperation of training station employer	167
2.	Training offered at the job site	145
3.	Maturity of student to handle the particular job	127
4.	Safety of training station	105
5.	Working conditions	87
6.	Future promotion, advancement, etc. for student	60
7.	Location	56
8.	Availability of supportive instructional materials in the classroom for additional job related training	52
9.	Age of student	44
10.	Working hours	39
11.	Students transportation problems	36
12.	Prerequisite of related agricultural skills	25
13.	Availability of supportive equipment in vocational agriculture shop for additional job related training	18
14.	Wages	18
15.	Prerequisite of related shop skills	19

Table 9 shows the relative importance of the skill and knowledge areas taught in Vocational Agriculture in Texas as indicated by agricultural/agribusiness employers and Vocational Agriculture teachers.

TABLE 9

THE RELATIVE IMPORTANCE OF VOCATIONAL AGRICULTURE SKILL AND KNOWLEDGE AREAS AS PERCEIVED BY AGRICULTURAL EMPLOYERS AND VOCATIONAL AGRICULTURE TEACHERS

Skill and Knowledge Area*	Employer Rank	Teacher Rank
Safety Practices	5.5	2
Using Leadership Skills	5.5	4
Metal Work	10	1
Use and Care of Tools	3.5	9
Record Keeping and Evaluation	9	7
Inter-Personal Job Skills	2	16
Repairing Ag Machinery and Equipment	7	11
Operation/Maintenance of Ag. Mach.	8	14
Animal Nutrition	20	5
Selecting Livestock	24.5	3
Caring for and "Working" Animals	22	6
Soil Evaluation	16	12
Controlling Animal Diseases/Parasites	19	10
Electricity	13	17
Plant Fertilization	12	19
Controlling Plant Pests	11	20
Using Business Practices	1	30
Carpentry	24.5	8
Farm/Ranch Management	15	18
Using Sales Techniques	3.5	31
Conserving Natural Resources	23	13
Energy Conservation	14	23.5
Selecting Seeds/Plants/Crops	17	21
Animal Reproduction	31	15
Plant Reproduction/Propagation	26.5	22
Irrigation Practices	18	32
Planning/Maintaining Livestock Facilities/Equip.	28	23.5
Environmental Protection	21	33
Processing Agricultural Products	26.5	28
Plumbing	30	26
Grading Agricultural Products	29	27
Concrete and Masonry	32.5	25
Surveying	32.5	29

* Skill and knowledge areas are listed in rank order by combined employer and teacher responses.

INTERPRETATION OF DATA

The data received from employer and teacher samples were processed and presented in Table 1 on page 19. The two most significant columns in this table are those titled "SUM" and "WLD HIRE". "SUM" represents the number of Vocational Agriculture departments in Texas which had placed students in a job title as indicated during the previous three years; similarly, "WLD HIRE" represents the number of businesses that would consider hiring a Vocational Agriculture trained, entry-level employee. The "SUM" figure, for example, of 738 for "diversified crop and livestock farmhand" indicates that an estimated 738 (of approximately 900) Vocational Agriculture departments had placed a former student in this occupation within the previous three years. Moreover, an estimated 1995 employers in Texas would consider hiring a Vocational Agriculture trained, entry-level employee in this particular job title. So, this occupation appeared to have employment potential for Vocational Agriculture students. In comparison, a "grain farmhand" job title was indicated as a job placement for a Vocational Agriculture student by an estimated 340 departments. Approximately 1773 businesses would consider hiring a student in this job title. Therefore, the ratio of placements to "would hires" is much lower for "grain farmhand" (340/1773) than for "diversified crop and livestock farmhand" (738/1995). A possible interpretation of these data is that the placement potential (compared to past placement indications) is more favorable for a "grain farmhand" than for a "diversified crop and livestock farmhand."

This ratio - placements divided by "would hires" - is shown in Table 1 as the "PPR WLD H" (the "potential placement ratio, would hire"). So, the "PPR WLD H" column can be used to give teachers an indication of the relative placement potential for a job title - in comparison to other job titles. Or, the "PPR WLD H" can be compared to the "TPPR" -- the "total potential placement ratio." The total

potential placement ratio indicates the grand total of placements in all job titles divided by the total numbers of "would hire" indications by businesses. The TPPR was calculated to be .20483. So, all job titles with a "PPR WLD H" below .20483 have a "better than average" potential placement ratio. To simplify the determination of the relative potential placement ratio for a job title in comparison to the PPR for other job titles and to the TPPR, the "PPS WLD H" was calculated. As explained on page 13, the PPS (potential placement status) is determined simply by subtracting TPPR from the PPR for each job title. Now, any job title with a potential placement ratio "better than" the TPPR would have a negative value. Again, to simplify the interpretation and determination of a job with a relatively "good potential placement status," all job titles were listed in ascending order based on PPS. This list is provided as Table 2 on page 26.

A Vocational Agriculture teacher can therefore determine those jobs that have had relatively few placements in relation to the potential for placement. These job titles are identified as "emerging jobs." In addition to looking at the PPS ratio, however, one should also look at the "raw data" -- the actual numbers -- that were used as the basis for the calculation of the PPS. For example, here is an interpretation of the data for two job titles from Tables 1 and 2 -- "forest insect ranger" and "hydraulics mechanic". Both have "good" potential placement status (-0.16873 for "forest insect ranger" and -0.16647 for "hydraulics mechanic" as shown on page 26, Table 2). However, even though the PPSs are almost identical, the raw data from Table 1, pages 22 and 23, show a definite difference between the estimated numbers of placements and placement potentials. While only 8 departments had placed students as "forest insect rangers", 102 departments had placed students as "hydraulics mechanics". Moreover, 222 businesses might consider hiring Vocational Agriculture students as "forest insect rangers", while 2659 businesses would consider hiring them as "hydraulics mechanics". Again, both jobs can be described as "emerging"; they both have relatively few placements when compared

to the number of "would hire" indications. But, the raw numbers used to determine the PPS indicate there are many more possibilities for the hiring of "hydraulics mechanics" than for "forest insect ranger". In counseling students for career directions, teachers should, therefore, consider both the PPS of a job title and the actual numbers for placements and placement potential.

The ranking of the job titles by PPS in Table 2 on page 26 was used to identify "emerging occupations." Those 50 to 60 jobs listed first in the tables, because they have had relatively few placements but placement potential exists, are "emerging". Those jobs that are listed at the end of Table 2 have had many placements relative to the potential placement market. These jobs seem to be more traditional areas for placements of Vocational Agriculture students. Year after year, relatively large numbers of students have been placed in these jobs. The jobs "surrounding" the TPPR (where PPSs in Table 2 change from negative (-) to positive (+)) probably have the most immediate potential for increased placements. Since there have been a relatively substantial number of placements recently in these jobs, "selling" potential employers on the values of hiring Vocational Agriculture trained individuals should be easier. Similarly, there are a relatively large number of placement opportunities available. There are also the job titles that instructional materials development personnel need to review carefully to ensure that adequate instructional materials are available to use in preparing Vocational Agriculture students for the jobs. Again, data in Table 1 should be examined to determine the approximate numbers of placements and potential placements in a particular job title when making decisions about placement and guidance efforts and about needs for instructional materials development.

Tables 3, 4, and 5, on pages 32 and 33, provide job titles that were reported by teachers and/or businesses as existing, as having placements, or as having placement potential; however, adequate information was not available to compute

a PPR or PPS. These jobs may have potential for placement, but information is not available to indicate the extent of this potential.

Tables 6 and 7, on page 34, merely provide descriptive information about the location of Vocational Agriculture departments and the tenure of Vocational Agriculture teachers. The data indicate two significant facts: (1) Vocational Agriculture departments are located primarily in rural or "small" urban locales since more than 90% of the instructors teach in cities or communities of less than 50,000 people; (2) A majority of the Vocational Agriculture teachers have taught ten years or less, and almost one-third have taught 5 years or less.

Data in Table 8, on page 35, were collected only from those teachers who coordinate cooperative part-time training programs. The teachers indicated rather convincingly that training station factors are the most important in evaluating a prospective job for student placement: The employer, the training, and working conditions and safety represented four of the highest five ranked placement factors. The other most important factor involved the student -- his/her maturity to handle the job. The data suggest that the job itself and related considerations should be evaluated most carefully in selecting a training station for student placement.

Finally, data in Table 9, on page 36, compare the perceptions of Vocational Agriculture teachers and agricultural employees to selected skill and knowledge areas in agriculture. The discrepancies between the rankings by the two groups for some of the skill and knowledge areas is rather striking. The largest rank discrepancy involved the importance of "using business practices". Employers ranked this skill/knowledge area number one -- as the most important for a beginning employee to possess. Teachers, on the other hand, ranked it thirtieth (out of 33 areas) in importance of the areas taught in Vocational Agriculture. Conversely, teachers ranked "selecting livestock" as the third most important skill/knowledge area in Vocational Agriculture while employers ranked its importance as only tied for twenty-fourth.

In summary, teachers tend to rank as most important specific, traditional agricultural skill and knowledge areas. Employers ranked genetic job skills and interpersonal skills as more important.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The primary objective of this study was to identify emerging job titles in Vocational Agriculture. Information resulting from the study may be used by Vocational Agriculture teachers when making instructional development and placement decisions. The information should also be used by instructional materials development personnel in evaluating existing materials and as a guide in developing new materials. The Texas Education Agency should be able to use the information to make decisions regarding program emphasis, direction, and growth.

In general, the study resulted in the identification of more than 150 jobs that were described as "emerging". That is, these jobs have a relatively high placement potential for Vocational Agriculture students and/or graduates. Comprehensive job descriptions were developed to identify the primary work requirements for each job. These descriptions may be used by Vocational Agriculture teachers for matching student interests and skills to job requirements. Cooperative training coordinators can also use the information to evaluate potential placement each school year. Developers of instructional materials can use the job descriptions in developing and/or revising instructional materials. Finally, area consultants may use the descriptions to evaluate training plans and to guide coordinators in developing placement objectives and strategies. In addition, the Agency should consider reviewing the job descriptions and emerging occupations with new teachers each year during the summer workshop. Specific strategies for placement and more regionalized information may be developed by reviewing or revising the information during area or district inservice teachers' meetings.

The procedures used in this study (in modified form) may be used by local teachers of Vocational Agriculture to determine new and emerging jobs and occupational opportunities for students. (The "Local Program Survey Procedures for Vocational Agriculture" should be used in accomplishing this task.) Moreover, teachers should use the results of this study to evaluate potential training

stations for co-op students. The factors identified and ranked in importance by teachers as considerations in evaluating a potential training station should serve as the basic criteria in this developmental work.

The guidance role of the Vocational Agriculture teacher and the vocational counselor should be enhanced by using the information generated by this study. For example, the communication to students concerning potential employment opportunities should be imporved; teachers now have empirical evidence (facts and figures) from possible employers to point out to students the personnel needs in high demand occupations. Similarly, students could be apprised of work requirements, benefits, job settings, etc., for specific job titles. In short, students should benefit directly from the information contained here.

As a recommendation related to student guidance, teacher educators and the Agency should consider strategies for increasing the overall experience level of Texas teachers of Vocational Agriculture. As evidenced by the data showing nearly one-third of the teachers with five years or less of teaching experience, teacher turnover is large. Strategies for reducing teacher turnover may include reviewing work locations and conditions in the schools, salary levels, work responsibilities, and professional development activities. (This recommendation is parenthetical to the objectives of the study and merely evolved from descriptive data collected from the teachers.)

Finally, the agricultural education profession should examine carefully the implications of the data in Table 9. These data "compared" the relative importance of Vocational Agriculture skill and knowledge areas as perceived by agricultural employees and Vocational Agriculture teachers. In essence, the ranks were not congruent. Agency personnel, teachers, teacher educators and researchers should determine the reasons for this lack of agreement. Again, this recommendation suggests another area for study.

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APPENDIX A

Standard Industrial Classifications (SIC) Of Businesses Sampled

STANDARD INDUSTRIAL CLASSIFICATIONS (SIC)
OF BUSINESSES SAMPLED

SIC	Types of Businesses
0111	Wheat Farms
0112	Rice Farms
0119	Other Cash Grains
0131	Cotton Farms
0161	Vegetable and Melon Farms
0173	Tree Nut Farms
0174	Citrus Fruit Farms
0189	Horticultural Speciality Farms
0191	General Farms, Primairly Crops
0211	Beef Cattle Feedlots
0212	Beef Cattle, Except Feedlots
0213	Hog Farms
0219	General Livestock Farms
0241	Dairy Farms
0254	Poultry Hatcheries
0272	Horse and Other Equine Farms
0279	Animal Specialty Farms
0721	Crop Planting, Protection and Cultivating Services
0723	Crop Preparation for Market, Except Cotton Ginning
0740	Veterinary Services
0752	Animal Specialty Services
0780	Landscape and Horticultural Services
0913	Shellfish Commercial Fishing
0921	Fish Hatcheries and Preserves
0971	Hunting and Trapping and Game Propagation

1540 - General Building Contractors

1629 - Heavy Construction

2011 - Meat Packing Plants

2013 - Sausage and Other Prepared Meat Products, Manufacturing

2016 - Poultry Dressing Plants

2044 - Rice Milling

2048 - Livestock Feed, Manufacturing

2051 - Bread and Other Bakery Products, Manufacturing

2061 - Cane Sugar Refining

2077 - Animal and Marine Fats and Oils, Processing

2082 - Malt Beverage, Manufacturing

2411 - Logging Camps and Logging Contractors

2421 - Saw Mills and Planing Mills

2491 - Wood Preserving Firms

2873 - Nitrogenous Fertilizer, Manufacturing

2874 - Phosphatic Fertilizer, Manufacturing

2879 - Pesticides and Agricultural Chemicals, Manufacturing

3523 - Farm Equipment and Machinery, Manufacturing

4221 - Farm Products Warehousing and Storage

5083 - Farm and Garden Machinery and Equipment, Wholesale

5147 - Meat and Meat Products, Wholesale

5148 - Fresh Fruit and Vegetables, Wholesale

5149 - Groceries and Related Products, Wholesale

5152 - Cotton Marketing (Not Exchange Members)

5153 - Grain and Bean Marketing

5154 - Livestock Marketing

5159 - Other Farm Product Raw Materials Marketing

5191 - Farm Supplies, Wholesale

5261 - Retail Nurseries, Lawn and Garden Supply Stores

5411 - Grocery Stores, Retail

5422 - Freezer and Locker Meat Provisioners, Retail

5423 - Meat and Fish Markets, Retail

5431 - Fruit Stores and Vegetable Markets, Retail

5992 - Florists, Retail

6131 - Agricultural Credit Institutions

6531 - Real Estate Agents and Managers

6541 - Title Abstract Offices

7692 - Welding Repair

7997 - Membership Sports and Recreation Clubs

7999 - Amusement and Recreation Services

8421 - Arbortea, Botanical, and Zoological Gardens

9512 - Government Land, Mineral, Wildlife and Forest Conservation Agencies

APPENDIX B

Description of Products

and

Sample Job Description

DESCRIPTION OF PRODUCTS*

Vocational Agriculture Job Description Manual

Job related data were collected through a review of available written materials and where necessary, by interviewing supervision and incumbents on the job. The resultant job descriptions included a functional level job description, pre-employment qualification requirements, a description of work environment for the job and a description of expected worker traits.

On page B-3, a sample copy of the job description for Farm Machinery and Equipment Counter Person is presented. This is the format used to develop the work requirements for each job analyzed.

Guidelines for Updating Listing

Two documents were developed to accomplish the future updating of this project.

First a handbook entitled "Local Program Survey Procedures for Vocational Agriculture" provides participating teachers a way to develop local job potential records for their program area. Included in this package are instructions, interview forms, reference lists, yearly update procedures and other information needed to complete this activity. This document will enable the teacher to survey local organizations that have potential jobs for students in all vocational agriculture programs.

The second document entitled "Statewide Update Survey Procedures for Vocational Agriculture" describes how the Agency can use the information collected by teachers to accomplish a statewide updating of this information. The state updating procedures are dependent upon adequate teacher participation in developing a local program data base. Once teachers have their data, the statewide updating procedure can be accomplished quickly and efficiently.

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*The Research Coordinating Unit of the Texas Education Agency has a complete set of these documents.

FARM MACHINERY AND EQUIPMENT COUNTER PERSON

JOB DESCRIPTION

Persons in this job work for a farm machinery dealership or a parts store that handles supplies for many makes of farm machinery. Responsible for the selling of spare and replacement parts to customers over the counter and on the telephone. Dispenses replacement parts for service jobs. Receives stores and maintains an inventory of machinery parts. Must be able to identify parts, determine parts numbers and determine prices. Continual contact with customers through sales requires that a parts man be able to work harmoniously with customers to maximize customer satisfaction. Keeps records in the form of statements, bills, orders, credit accounts and warranty adjustments. May deliver parts.

PRE-EMPLOYMENT QUALIFICATION REQUIREMENTS

Motor Vehicle License
Any mechanical experience is desired
High school education
Posts secondary vocational courses for advancement
Training recieved in agricultural mechanics courses is very helpful in this job
Personal interview
Average physical condition
16 years of age

WORK ENVIRONMENT

Inside location
Air conditioned environment
40 hours per week
$7,600 to $10,500 per year income

DESIRABLE WORKER TRAITS

Good background in arithmetic
Enjoys serving people
Honest
Dependable
Pleasing personality
Neat appearance

APPENDIX C

Job Analysis Interview Form

JOB ANALYSIS INTERVIEW FORM I

Job Title_____ DOT_____

Company_____ SIC_____

Address_____ Phone_____

Contact Person_____

Job Analyst (Name)_____

JOB DESCRIPTION

List General Work Activities Performed By
Incumbent Workers On This Job

DESCRIBE PRE-EMPLOYMENT QUALIFICATION REQUIREMENTS:

Licenses:

Previous Experience:

Educational Requirements:

Training Requirements:

Employment Tests (Polygraph, Skill, Psychological):

Physical Skill Requirements:

Age:

DESCRIBE THE WORK ENVIRONMENT:

Location (Inside, Outside):

Controlled Environment (Air Conditioned) or Natural:

Work Schedules:

Social Relationships:

Income and Benefits:

Other:

DESCRIBE DESIRABLE WORKER TRAITS:

(Attitudes, Temperaments, Interests, etc.)

DESCRIBE UNUSUAL PERSONAL DEMANDS:

Psychological (Stress):

Physical (Hazardous Environment, Lifting, etc.):

Time (Odd or Long Hours):

Other (What are they?):

DESCRIBE THE MOST IMPORTANT TRAINING an apprentice employee should have, after employment, to succeed in this job. (Please describe total training needed for the job.)

DESCRIBE the promotion or career opportunities available to an employee as a usual result of training and experience in this job. (What is the next promotion position?)

DESCRIBE why this job is (not) suitable for part-time student employment. (Students 16-18 years old.)

APPENDIX D

Survey Booklet for Businesses

A JOB SURVEY

FOR

VOCATIONAL AGRICULTURE

PREPARED FOR THE

TEXAS EDUCATION AGENCY

BY THE

OCCUPATIONAL RESEARCH DIVISION
INDUSTRIAL ENGINEERING DEPARTMENT
TEXAS A&M UNIVERSITY

DO NOT WRITE IN THIS SPACE			C-1
	JOB NUMBER	⌊_⌊_⌊_⌊_⌋	1- 4
	SIC	⌊_⌊_⌊_⌊_⌋	5- 8
	POPULATION CODE	⌊_⌊_⌊_⌊_⌋	9-12
	ZIP CODE	⌊_⌊_⌊_⌊_⌋	13-16

Please review this survey before
you decide not to participate.

INSTRUCTIONS

You will perform an invaluable service to the future training and employment experience of Vocational Agriculture (Vo.Ag.) students by accurately completing this form. The results will be used to keep Vo.Ag. programs up-to-date with the skills, knowledge and jobs in demand by industry. Many skills and knowledge taught in Vo.Ag. are not traditionally thought of as agriculture related.

VOCATIONAL AGRICULTURE DEFINED

Vo.Ag. is a program of instruction designed to prepare high school students for careers in farming, agribusiness and renewable natural resources. The primary goal of Vo.Ag. is the development of skilled and educated individuals for agriculture related jobs on and off the farm.

This survey is asking for agriculture related jobs in your organization. To qualify for this survey you should have recent experience in employing, training or supervising beginning employees.

If you need additional information to complete this form, do not hesitate to ask assistance from others in your organization.

This is not a commitment to employ Vo.Ag. students.

Please return the completed survey in the enclosed self-addressed stamped envelope within five (5) days.

This booklet has two (2) sections. Please complete Section I before going on to Section II.

SECTION I

The skills and knowledge areas below are presently taught in Vo.Ag. classes. Check (✓) the ten (10) that in your opinion are most important to a beginning employee's success in your organization.

a. Animal Nutrition: Feeds and Feeding. . . . . ☐ 17
b. Selecting Livestock . . . . . ☐ 18
c. Caring for and "Working" Animals. . . . . ☐ 19
(Castrating, Dehorning, Grooming, Restraining, etc.)
d. Controlling Animal Diseases or Parasites. . . . . ☐ 20
e. Planning or Maintaining Livestock Facilities and Equipment. . . . . ☐ 21
f. Animal Reproduction . . . . . ☐ 22
(Artificial Insemination, Palpation, Heat Detection, etc.)
g. Conserving Natural Resources (Land, Water, Range, Forests, etc.). . . . . ☐ 23
h. Selecting Seeds, Plants or Crops. . . . . ☐ 24
i. Soil Evaluation (Determining Fertility, Texture, Productivity, etc.). . . . ☐ 25
j. Operation or Maintenance of Agricultural Machinery. . . . . ☐ 26
(Tillage, Planting, Cultivation, Harvesting, etc.)
k. Plant Fertilization . . . . . ☐ 27
l. Controlling Plant Pests (Weeds, Insects, Diseases, etc.). . . . . ☐ 28
m. Irrigation Practices. . . . . ☐ 29
n. Plant Reproduction or Propagation . . . . . ☐ 30
o. Repairing Agricultural Machinery and Equipment. . . . . ☐ 31
(Engines, Power Trains, Irrigation & Processing Systems, etc.)
p. Carpentry . . . . . ☐ 32
q. Metal Work (Welding, Sheet Metal, Cutting, etc.). . . . . ☐ 33
r. Electricity (Motors, Wiring, Testing, etc.) . . . . . ☐ 34
s. Concrete and Masonry. . . . . ☐ 35
t. Plumbing. . . . . ☐ 36
u. Surveying . . . . . ☐ 37
(Land Measurement, Drainage Systems, Fence Layout, etc.)
v. Safety Practices. . . . . ☐ 38
w. Use and Care of Tools . . . . . ☐ 39
x. Processing Agricultural Products. . . . . ☐ 40
(Meat, Eggs, Milk, Wool, Grain, Vegetables, etc.)
y. Grading Agricultural Products . . . . . ☐ 41
(Meat, Eggs, Milk, Wool, Grain, Vegetables, etc.)
z. Energy Conservation . . . . . ☐ 42
(Fuel, Electricity, Alternate Energy Sources, etc.)
aa. Environmental Protection. . . . . ☐ 43
(Chemical Applicator's Certification)
bb. Farm or Ranch Management (Marketing, Credit, Planning, etc.). . . . . ☐ 44
cc. Record Keeping and Evaluation (Tax, Inventory, Breeding, etc.). . . . . ☐ 45
dd. Using Leadership Skills . . . . . ☐ 46
(Decision Making, Maturity, Parliamentary Procedure, etc.)
ee. Using Sales Techniques. . . . . ☐ 47
(Product Display, Greeting the Customer, etc.)
ff. Using Business Practices (Pricing, Business Forms, Inventory, etc.) . . . ☐ 48
gg. Inter-Personal Job Skills . . . . . ☐ 49
(Interviewing, Work Attitude, Following Directions, etc.)
hh. Others, Specify_____ ☐ 50
ii. _____ ☐ 51

SECTION II

Section II has two steps. Please complete Step #1 before going on to Step #2.

Section II is a list of Agriculture related jobs. This list is grouped by areas of general knowledge. However, many businesses are made up of two or more parts which require different areas of knowledge. For this reason review all of the jobs before starting on Section II.

For example: A beef cattle feedlot may include: (1) a feedlot, (2) a repair shop, (3) a feedmill and (4) a meat processing plant. Job titles for this business may be found under (1) Production Agriculture (Beef Feedlot Hand), (2) Agricultural Mechanics (Farm Equipment Mechanic) and (3) Agricultural Products (Feedmill Helper and Meatcutter's Assistant).

Some job titles are general and others are more specific. Job titles which include the terms "helper", "worker" and "hand" are more general and are used to identify jobs which require an employee to perform a variety of tasks.

For example: A Feedstore Helper may unload bulk grain, mix feed, assist customers and sweep up. Two similar but more specific job titles are Miller's Assistant (mixes feed) and Counter Person (assists customers). Consider the title that best describes an employee's work.

On pages 4 to 13 you will find a listing of agriculture related job titles. You are to review the job titles listed and rate them on certain criteria.

Your assignment in Section II is to: (1) review the list of job titles on pages 4 to 13 , (2) complete Step #1, and (3) complete Step #2.

Step #1

Check (✓) in column one (1) those jobs which exist in your organization. As you review the list please add other agriculture related jobs existing in your business.

Please complete Step #1 before going on to Step #2.

Step #2

Keeping in mind the skills and knowledge areas from Section I, review each job you checked (✓) or added as existing and determine which jobs are possible employment opportunities for Vo.Ag. trained, entry-level employees.

For each job that exists in your organization, place a check (✓) in column two (2) if you would consider hiring a Vo.Ag. trained, entry-level employee.

VOCATIONAL AGRICULTURE JOB TITLES	1 Existing Jobs	2 Would hire VoAg trained employee	
AGRICULTURAL PRODUCTION			C-2
1. Diversified Crop and Livestock Farmhand			5- 6
2. Certified Seed Farmhand			7- 8
3. Diversified Crop Farmhand			9-10
4. Field Crop Farmhand			11-12
5. Forage Crop Farmhand			13-14
6. Fruit and Berry Farmhand			15-16
7. Grain Farmhand			17-18
8. Tree Crop Farmhand			19-20
9. Vegetable Farmhand			21-22
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
10. Beekeeper (Apiarist)			23-24
11. Beef Cattle Production Hand			25-26
12. Beef Feedlot Hand			27-28
13. Broiler Production Worker			29-30
14. Dairy Production Hand			31-32
15. Milker, Machine			33-34
16. Diversified Livestock Hand			35-36
17. Egg Production Worker			37-38
18. Fish Farm Worker			39-40
19. Fish Hatchery Worker			41-42
20. Goat Production Hand			43-44
21. Horse Production Hand			45-46
22. Poultry Hatchery Worker			47-48
23. Caponizer			49-50
24. Chick Culler			51-52
25. Chick Sexer			53-54
26. Inseminator			55-56
27. Sheep Feedlot Hand			57-58
28. Sheep Production Hand			59-60
29. Swine Feedlot Hand			61-62
30. Swine Production Hand			63-64
31. Turkey Production Worker			65-66
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
AGRICULTURAL PRODUCTS			
1. Cotton Gin Machine Operator			67-68

VOCATIONAL AGRICULTURE JOB TITLES	1 Existing jobs	2 Would hire VoAg trained employee	
AGRICULTURAL PRODUCTS			
2. Cotton Sampler			69-70
3. Cotton Weigher			71-72
4. Fleece Tier			C-3 5- 6
5. Ginner's Assistant			7- 8
6. Sheep Shearer			9-10
7. Wool Sacker			11-12
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
8. Butter Maker's Assistant			13-14
9. Cheese Blender's Assistant			15-16
10. Cream Separator's Assistant			17-18
11. Dairy Processing Helper			19-20
12. Dairy Processing Machine Operator			21-22
13. Dairy Products Delivery Person			23-24
14. Flavor Room Worker			25-26
15. Homogenizer's Assistant			27-28
16. Ice Cream Maker's Assistant			29-30
17. Kosher Inspector's Assistant			31-32
18. Milk Sterilizer's Assistant			33-34
19. Novelty Maker (Dairy Products)			35-36
20. Pasteurizer's Assistant (Dairy Products)			37-38
21. Egg Candler			39-40
22. Cooler Room Worker (Egg)			41-42
23. Egg Delivery Person			43-44
24. Egg Packager			45-46
25. Egg Processing Machine Tender			47-48
26. Egg Processing Worker			49-50
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
27. Fish and Seafood Delivery Person			51-52
28. Fish and Seafood Processing Helper			53-54
29. Fish and Seafood Processing Machine Operator			55-56
30. Fish Cleaner-Scaler			57-58
31. Fish Filleter			59-60
32. Seafood Butcher			61-62
33. Shellfish Shucker			63-64
At the end of the survey, add jobs which are not listed. Make appropriate checks.			

VOCATIONAL AGRICULTURE JOB TITLES	1 Existing Jobs	2 Would hire VoAg trained employee	
AGRICULTURAL PRODUCTS			
34. Bolter's Assistant (Grain)			65-66
35. Bulk Grain Hauler			67-68
36. Feed Mixer's Assistant			69-70
37. Grain Elevator Assistant Clerk			71-72
38. Grain Elevator Operator			C-4 5- 6
39. Grain Processing Helper			7- 8
40. Grain Processing Machine Operator			9-10
41. Miller's Assistant (Grain)			11-12
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
42. Hide Handler			13-14
43. Hide Processing Helper			15-16
44. Hide Trimmer			17-18
45. Wool Puller			19-20
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
46. Comb Decapper			21-22
47. Honey Blender's Assistant			23-24
48. Honey Processing Machine Operator			25-26
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
49. Breaking House Worker			27-28
50. Cooler Room Worker (Meat Processing)			29-30
51. Curing-Smoking Assistant (Meat Processing			31-32
52. Kill Floor Worker (Meat Processing)			33-34
53. Meat Delivery Person			35-36
54. Meat Processing Helper			37-38
55. Meat Processing Machine Operator			39-40
56. Meatcutter's Assistant			41-42
57. Sausage Maker's Assistant			43-44
58. Shactor's Assistant			45-46
59. Tank House Worker (Meat Processing)			47-48
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
60. Nut Packager			49-50
61. Nut Processing Helper			51-52
62. Nut Processing Machine Operator			53-54
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
63. Poultry Boner			55-56

VOCATIONAL AGRICULTURE JOB TITLES	1 Existing Jobs	2 Would hire VoAg trained employee	
AGRICULTURAL PRODUCTS			
64. Cooler Room Worker (Poultry)			57-58
65. Poultry Cutter			59-60
66. Poultry Dresser			61-62
67. Poultry Packager			63-64
68. Poultry Tankman			65-66
69. Processed Poultry Delivery Person			67-68
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
70. Produce Field Hauler			69-70
71. Packaged Produce Delivery Person			71-72
72. Produce Processing Helper			C-5 5- 6
73. Produce Processing Machine Operator			7- 8
74. Produce Processing Packer			9-10
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
75. Seed Cleaner			11-12
76. Seed Packager			13-14
77. Seed Processing Machine Operator			15-16
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
AGRICULTURAL SUPPLY AND SERVICE			
1. Agri-Chemical Applicator			17-18
2. Agri-Chemical Field Technician (Scout)			19-20
3. Agri-Chemical Supply and Service Helper			21-22
4. Integrated Pest Management Aide (Agri-Chemical)			23-24
5. To Farm Agri-Chemical Delivery Person			25-26
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
6. Crop Duster, Pilot			27-28
7. Agricultural Flying Service Groundman			29-30
8. Agricultural Flying Service Helper			31-32
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
9. Batch Mixer-Weigher (Fertilizer)			33-34
10. Fertilizer Applicator			35-36
11. Fertilizer Supply and Service Helper			37-38
12. To Farm Fertilizer Delivery Person			39-40
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
13. Artificial Insemination/Palpation Assistant			41-42
14. Feed Store Helper			43-44

VOCATIONAL AGRICULTURE JOB TITLES	1 Existing Jobs	2 Would hire Vo Ag trained employee	
AGRICULTURAL SUPPLY AND SERVICE			
15. Horseshoer (Farrier)			45-46
16. Horsetrainer			47-48
17. Livestock Auction Worker			49-50
18. Livestock Groomer-Shower			51-52
19. Livestock Hauler			53-54
20. Poultry Hauler			55-56
21. To Farm Feed Delivery Person			57-58
22. Veterinary Assistant			59-60
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
23. Seed Field Technician			61-62
24. Seed Supply and Service Helper			63-64
25. To Farm Seed Delivery Person			65-66
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
26. Dog Groomer			67-68
27. Kennel Worker			69-70
28. Laboratory Animal Caretaker			71-72
29. Pet Store Worker			C-6 5- 6
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
30. To Farm Agricultural Fuel Delivery Person			7- 8
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
AGRICULTURAL MECHANICS			
1. Agricultural Carpenter			9-10
2. Agricultural Concrete or Brick Worker			11-12
3. Agricultural Electrician			13-14
4. Agricultural Facilities Construction Worker			15-16
5. Agricultural Facilities Maintenance Worker			17-18
6. Agricultural Fence Builder			19-20
7. Agricultural Plumber			21-22
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
8. Agricultural Processing Equipment Service Person			23-24
9. Artificial Insemination Equipment Service Person			25-26
10. Dairy Equipment Service Person			27-28
11. Electric Motor Mechanic			29-30
12. Farm Equipment Mechanic			31-32
13. Farm Equipment Setp-up Mechanic			33-34

VOCATIONAL AGRICULTURE JOB TITLES	1 Existing Jobs	2 Would hire VoAg trained employee	
AGRICULTURAL MECHANICS			
14. Farm Irrigation Equipment Service Person			35-36
15. Golfcourse Equipment Service Person			37-38
16. Hand and Powertool Equipment Service Person			39-40
17. Horticultural Equipment Service Person			41-42
18. Hydraulics Mechanic			43-44
19. Lawn Sprinkler Equipment Service Person			45-46
20. Livestock Equipment Service Person			47-48
21. Logging Equipment Service Person			49-50
22. Motorboat Mechanic			51-52
23. Outboard Motor Mechanic			53-54
24. Poultry Hatchery Equipment Service Person			55-56
25. Recreational Vehicle Mechanic			57-58
26. Small Engines Mechanic			59-60
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
27. Agricultural Equipment Designer			61-62
28. Agricultural Equipment Draftsman			63-64
29. Agricultural Equipment Operator			65-66
30. Agricultural Facilities Designer			67-68
31. Agricultural Facilities Draftsman			69-70
32. Agricultural Surveyor Helper			71-72
33. Agricultural Welder			C-7 5- 6
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
FORESTRY			
1. Christmas Tree Farm Worker			
2. Forest Nursery Worker			9-10
3. Forestry Aide			11-12
4. Forestry Technician			13-14
5. Tree Planter (Forestry)			15-16
6. Tree Pruner (Forestry)			17-18
7. Wood Producer			19-20
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
8. Fire Warden			21-22
9. Forest Fire Fighter			23-24
10. Forest Fire Ranger			25-26
11. Forest Fire Suppression Crew Leader			27-28

VOCATIONAL AGRICULTURE JOB TITLES	1 Existing Jobs	2 Would hire VoAg trained employee	
FORESTRY			
12. Forest Fire Suppression Worker			29-30
13. Forest Insect Ranger			31-32
14. Smoke Jumper			33-34
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
15. Cruiser			35-36
16. Log Marker			37-38
17. Logging Skidder Operator			39-40
18. Saw Mill Worker			41-42
19. Sawyer			43-44
20. Tree Cutting Worker			45-46
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
HORTICULTURE			
1. Floral Consultant			47-48
2. Floral Delivery Person			49-50
3. Floral Designer			51-52
4. Flower Arranger			53-54
5. Flower Shop Helper			55-56
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
6. Ball and Burlapper			57-58
7. Bonsai Culturist			59-60
8. Flower Harvester			61-62
9. Greenhouse Worker			63-64
10. Mushroom Farm Worker			65-66
11. Nursery Worker			67-68
12. Plant Grower (Fertilize, Water, etc.)			69-70
13. Plant Propagator			71-72
14. Sod Farm Worker			C-8 5- 6
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
15. Cemetery Worker (Landscaping)			7- 8
16. Greenskeeper			9-10
17. Groundskeeper			11-12
18. Landscape Assistant			13-14
19. Landscape Delivery Person			15-16
20. Landscape Drafter			17-18
21. Landscape Service Helper			19-20

VOCATIONAL AGRICULTURE JOB TITLES	1 Existing Jobs	2 Would hire VoAg trained employee	
HORTICULTURE			
22. Parks Maintenance Worker (Landscaping)			21-22
23. Tree Surgeon/Pruner/Sprayer			23-24
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
24. Garden Center Worker			25-26
25. Plant Maintenance Service Worker			27-28
26. Plant Store Worker			29-30
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
RENEWABLE NATURAL RESOURCES			
1. Air Pollution Control Inspector			31-32
2. Air Pollution Control Technician			33-34
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
3. Fish Conservation Aide			35-36
4. Fish Hatchery Worker			37-38
5. Fish Research Technician			39-40
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
6. Land Use Planning Aide			41-42
7. Land Use Planning Technician			43-44
8. Zoning Compliance Officer			45-46
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
9. Commercial Fisherman			47-48
10. Fisheries Technician			49-50
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
11. Botanical Garden/Arboretum Worker			51-52
12. Campground Maintenance Worker			53-54
13. Campground Manager			55-56
14. Game and Hunting Farm Worker			57-58
15. Animal Caretaker			59-60
16. Hunting and Fishing Guide			61-62
17. Park Aide (Recreation)			63-64
18. Park Maintenance Person (Recreation)			65-66
19. Park Patrol Officer			67-68
20. Park Ranger			69-70
21. Recreation Farm Worker			71-72
22. Taxidermist			C-9 5- 6
23. Zoo or Aquaria Worker			7- 8

VOCATIONAL AGRICULTURE JOB TITLES	1 Existing Jobs	2 Would hire VoAg trained employee	
RENEWABLE NATURAL RESOURCES			
24. Soil Conservation Aide			9-10
25. Soil Conservation Technician			11-12
26. Waste Water Technician			13-14
27. Water Treatment Plant Officer			15-16
28. Watershed Conservation Aide			17-18
29. Watershed Conservation Technician			19-20
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
30. Fur Buyer			21-22
31. Predatory Animal Hunter			23-24
32. Wildlife Conservation Aide			25-26
33. Wildlife Conservation Officer's Assistant			27-28
34. Wildlife Conservation Technician			29-30
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
AGRICULTURAL PRODUCT QUALITY DETERMINATION			
1. Buyer			31-32
2. Classer			33-34
3. Culler			35-36
4. Grader			37-38
5. Inspector			39-40
6. Laboratory Worker			41-42
7. Sanitation Worker			43-44
8. Sorter			45-46
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
AGRICULTURAL SALES			
1. Auctioneer			47-48
2. Cashier			49-50
3. Clerk			51-52
4. Counter Person			53-54
5. Commission Agent			55-56
6. Sales Person			57-58
7. Sales Representative			59-60
At the end of the survey, add jobs which are not listed. Make appropriate checks.			
OTHER AGRICULTURE			
1. Agricultural Computer Worker			61-62
2. Agricultural Import and Export Worker			63-64

VOCATIONAL AGRICULTURE JOB TITLES	1 Existing Jobs	2 Would hire Vo Ag trained employee	
OTHER AGRICULTURE			
3. Agricultural Loan Officer Assistant			65-66
4. Agricultural Publications Worker			67-68
5. Agricultural Real Estate Worker			69-70
6. Agricultural Scientist Assistant			71-72
Add additional job titles here. Make appropriate checks.			

Please check (✓) in the appropriate box as you complete each assignment.

SECTION I

☐ Completed

Return to page 3 and read the instructions for Section II and Step #1.

SECTION II

Step #1

☐ Completed

Return to page 3 and read the instructions for Step #2 of Section II.

Step #2

☐ Completed

THANK YOU

Now place this survey in the self-addressed stamped envelope and drop in the mail.

Return to:

Occupational Research Division
Industrial Engineering Department
Texas A&M University
College Station, Texas 77843

APPENDIX E

Survey Booklet for Teachers

A JOB SURVEY
FOR
VOCATIONAL AGRICULTURE
TEACHERS

PREPARED FOR THE

TEXAS EDUCATION AGENCY

BY THE

OCCUPATIONAL RESEARCH DIVISION
INDUSTRIAL ENGINEERING DEPARTMENT
TEXAS A&M UNIVERSITY

INSTRUCTIONS

You will provide an invaluable service to the future placement and training of vocational agriculture (Vo.Ag.) students by accurately completing this survey.

The information you supply will be used to:

1. Help identify new and emerging Vo.Ag. jobs.
2. Provide information concerning the relative importance of the skills and knowledge areas taught in Vo.Ag.

This survey is in two sections (I and II).

To qualify for Section I, you must presently be employed as a Vo.Ag. teacher in Texas. Section I deals with your personal background data and the relative importance of the skills and knowledge areas taught in Vo.Ag.

SINGLE TEACHER DEPARTMENTS

If you teach in a single teacher department, complete and return Sections I and II.

MULTIPLE TEACHER DEPARTMENTS

Section II must be completed only <u>once</u> for each Vo.Ag. department. In a multiple teacher department, each teacher must complete Section I individually. Then work as a team with your fellow teachers to complete Section II. Section II must be filled out on only one survey returned to us, from each Vo.Ag. department. This prevents a student from being represented more than once. For example: A four teacher department would return one survey with both Sections I and II completed and three surveys with only Section I completed.

This survey is <u>not</u> an exam or any type of position evaluation instrument. It is a method by which you can communicate your placement experiences and opinions concerning Vo.Ag. skills and knowledge areas.

If you become tired or fatigued in completing this survey, stop and rest before continuing. The accurate description of your placement experiences and relative emphasis of Vo.Ag. skills and knowledge is essential to the decisions that will be made as a result of this effort.

SECTION I

BACKGROUND INFORMATION
Please Complete

		C-1
DO NOT WRITE	JOB NUMBER	1- 4
IN THIS SPACE	POPULATION CODE	5- 8

M F 9

1. Name _____

2. Name of school _____ City _____

3. School District _____

4. Write the number of students in your high school (grades 9-12). . [ ] 10-13

5. Write the number of years experience you have teaching Vocational Agriculture, including this year . . . . . [ ] 14-15

6. I teach the following classes
   - a. Ag 1. . . . . [ ] 16
   - b. Ag 2. . . . . [ ] 17
   - c. Ag 3. . . . . [ ] 18
   - d. Ag 4. . . . . [ ] 19
   - e. Co-op . . . . . [ ] 20
   - f. Pre-Employment Lab
     - (1) Meat Processing. . . . . [ ] 21
     - (2) General Agricultural Mechanics . . . . . [ ] 22
     - (3) Agricultural Machinery Service & Repair. . . . . [ ] 23
     - (4) Agricultural Resources . . . . . [ ] 24
     - (5) Agricultural Chemicals . . . . . [ ] 25
     - (6) Ornamental Horticulture. . . . . [ ] 26
     - (7) Forest Products Harvesting . . . . . [ ] 27
     - (8) Feedlot Employment . . . . . [ ] 28
     - (9) CVAE Horticultural Related Occupations . . . . . [ ] 29
     - (10) CVAE Farm and Ranch Mechanical Repair. . . . . [ ] 30
     - (11) VEH Horticultural Related Occupations. . . . . [ ] 31
     - (12) VEH Farm and Ranch Maintenance . . . . . [ ] 32

7. Write the number of students you have in the classes you teach.
   - a. Production. . . . . Male. . . [ ] 33-34; Female. . . [ ] 35-36
   - b. Co-op . . . . . Male. . . [ ] 37-38; Female. . . [ ] 39-40
   - c. Pre-Employment Lab (Including CVAE & VEH) . . . . . Male. . . [ ] 41-42; Female. . . [ ] 43-44

8. From the list below, check (✓) the ten (10) Vo.Ag. skills and knowledge areas you feel are most important.

a. Animal Nutrition: Feeds and Feeding. . . . . ☐ 45
b. Selecting Livestock . . . . . ☐ 46
c. Caring for and "Working" Animals. . . . . ☐ 47
(Castrating, Dehorning, Grooming, Restraining, etc.)
d. Controlling Animal Diseases or Parasites. . . . . ☐ 48
e. Planning or Maintaining Livestock Facilities and Equipment. . . . . ☐ 49
f. Animal Reproduction . . . . . ☐ 50
(Artificial Insemination, Palpatation, Heat Detection, etc.)
g. Conserving Natural Resources. . . . . ☐ 51
(Land, Water, Range, Forests, etc.)
h. Selecting Seeds, Plants or Crops. . . . . ☐ 52
i. Soil Evaluation . . . . . ☐ 53
(Determining Fertility, Texture, Productivity, etc.)
j. Operation or Maintenance of Agricultural Machinery. . . . . ☐ 54
(Tillage, Planting, Cultivation, Harvesting, etc.)
k. Plant Fertilization . . . . . ☐ 55
l. Controlling Plant Pests . . . . . ☐ 56
(Weeds, Insects, Diseases, etc.)
m. Irrigation Practices. . . . . ☐ 57
n. Plant Reproduction or Propagation . . . . . ☐ 58
o. Repairing Agricultural Machinery and Equipment. . . . . ☐ 59
(Engines, Power Trains, Irrigation and Processing Systems, etc.)
p. Carpentry . . . . . ☐ 60
q. Metal Work. . . . . ☐ 61
(Welding, Sheet Metal, Cutting, etc.)
r. Electricity (Motors, Wiring, Testing, etc.) . . . . . ☐ 62
s. Concrete and Masonry. . . . . ☐ 63
t. Plumbing. . . . . ☐ 64
u. Surveying . . . . . ☐ 65
(Land Measurement, Drainage Systems, Fence Layout, etc.)
v. Safety Practices. . . . . ☐ 66
w. Use and Care of Tools . . . . . ☐ 67
x. Processing Agricultural Products. . . . . ☐ 68
(Meat, Eggs, Milk, Wool, Grain, Vegetables, etc.)
y. Grading Agricultural Products . . . . . ☐ 69
(Meat, Eggs, Milk, Wool, Grain, Vegetables, etc.)
z. Energy Conservation . . . . . ☐ 70
(Fuel, Electricity, Alternate Energy Sources, etc.)
aa. Environmental Protection. . . . . ☐ 71
(Chemical Applicator's Certification)
bb. Farm or Ranch Management. . . . . ☐ 72
(Marketing, Credit, Planning, etc.)
cc. Record Keeping and Evaluation . . . . . ☐ 5
(Tax, Inventory, Breeding, etc.)
dd. Using Leadership Skills . . . . . ☐ 6
(Decision Making, Maturity, Parliamentary Procedure, etc.)
ee. Using Sales Techniques. . . . . ☐ 7
(Product Display, Greeting the Customer, etc.)
ff. Using Business Practices. . . . . ☐ 8
(Pricing, Business Forms, Inventory, etc.)
gg. Inter-Personal Job Skills . . . . . ☐ 9
(Interviewing, Work Attitude, Following Directions, etc.)
hh. Others, Specify_____ . . . . ☐ 10
ii. _____ . . . . ☐ 11

C-2

9. If you are a Co-op teacher, check the five (5) factors you consider most often when evaluating a job for Co-op placement.

a. Age of Student, ... ☐ 12
b. Availability of supportive equipment in the Vo.Ag. Shop for additional job related training . . . . . ☐ 13
c. Availability of supportive instructional materials in the classroom for additional job related training . . . . . ☐ 14
d. Cooperation of the training station employer. . . . . ☐ 15
e. Future promotion, advancement, or salary opportunities for student . . . . . ☐ 16
f. Location. . . . . ☐ 17
g. Maturity of student to handle the particular job. . . . . ☐ 18
h. Pre-requisite of related agricultural skills. . . . . ☐ 19
i. Pre-requisite of related shop skills. . . . . ☐ 20
j. Safety of training station. . . . . ☐ 21
k. Student's transportation problems . . . . . ☐ 22
l. Training offered at the job site. . . . . ☐ 23
m. Wages . . . . . ☐ 24
n. Working conditions. . . . . ☐ 25
o. Working hours . . . . . ☐ 26

SECTION II

Use only one survey document per Vo.Ag. department in completing Section II. In multiple teacher departments, work as a team to complete Section II.

The main purpose of this survey is to solicit your knowledge about the job placement of Vo.Ag. students. You may find old grade books and follow-up reports help refresh your memory but these may not be necessary.

Section II deals with jobs your former students have secured after completing a Vo.Ag. program. Also, included are jobs where co-op teachers place students. Consider graduates who received two (2) years of instruction in production agriculture or one (1) year in either co-op or pre-lab programs as having completed a program.

If a student completed more than one program, use the last program completed.

Your responses are to include only students who completed a Vo.Ag. program in the past three (3) years.

Please scan the remainder of this survey. By reviewing all of Section II at this point you will better understand the directions that follow.

Step #1

On pages 6 to 15 you will find a listing of agricultural job titles. You are to review these jobs and rate them on certain criteria.

Your assignment in Step #1 is to review the entire list and:

-If you teach co-op, place a check (✓) in the boxes in column one (1) which represent jobs where your present and former co-op students are employed.

-If you teach production ag, place a check (✓) in the boxes in column two (2) which represent jobs where your former production agriculture students are employed.

-If you teach pre-employment lab, place a check (✓) in the boxes in column three (3) which represent jobs where your former pre-employment lab students (including CVAE and VEH) are employed.

SECTION II, Step #1 Continued

As you review the list, add any job titles you feel are needed to make the list complete on page 15.

Step #2

On pages 16 to 21 you will find six (6) tables with agricultural products listed down and general job titles listed across. Note that a specific agricultural job title can be created by matching an agricultural product with a general job title. You will review these job titles and rate them on certain criteria.

Your assignment in Step #2 is to review the tables and:

-If you teach co-op, on Tables A and B, place a check (✓) in the boxes which represent jobs where your present and former co-op students are employed.

-If you teach Production Ag, on Tables C and D, place a check (✓) in the boxes which represent jobs where your former production agriculture students are employed.

-If you teach pre-employment lab, on Tables E and F, place a check (✓) in the boxes which represent jobs where your former pre-employment lab students (including CVAE and VEH) are employed.

As you review the tables, add any products you feel are needed to make them complete.

VOCATIONAL AGRICULTURE JOB TITLES	Former and Present Co-op 1	Former Production 2	Pre-Lab Including CVAE & VEH 3	
SELF-EMPLOYED INDIVIDUALS				C-3
1. Full Ownership (Prod. Ag. & Custom Operation)				5- 7
2. Partnership (Prod. Ag. & Custon Operation)				8-10
3. Family Operation (Prod. Ag. & Custom Operation)				11-13
4. Full Ownership (Agribusiness)				14-16
5. Partnership (Agribusiness)				17-19
6. Family Business (Agribusiness)				20-22
On page 15, add jobs that are not listed. Make appropriate checks.				

VOCATIONAL AGRICULTURE JOB TITLES	Former and Present Co-op 1	Former Production 2	Pre-Lab Including CVAE & VEH 3	
AGRICULTURAL PRODUCTION				
1. Diversified Crop and Livestock Farmhand				23-25
2. Certified Seed Farmhand				26-28
3. Diversified Crop Farmhand				29-31
4. Field Crop Farmhand				32-34
5. Forage Crop Farmhand				35-37
6. Fruit and Berry Farmhand				38-40
7. Grain Farmhand				41-43
8. Tree Crop Farmhand				44-46
9. Vegetable Farmhand				47-49
On page 15, add jobs that are not listed. Make appropriate checks.				
10. Beekeeper (Apiarist)				50-52
11. Beef Cattle Production Hand				53-55
12. Beef Feedlot Hand				56-58
13. Broiler Production Worker				59-61
14. Dairy Production Hand				62-64
15. Milker, Machine				65-67
16. Diversified Livestock Hand				68-70
17. Egg Production Worker				C-4 5-7
18. Fish Farm Worker				8-10
19. Fish Hatchery Worker				11-13
20. Goat Production Hand				14-16
21. Horse Production Hand				17-19
22. Poultry Hatchery Worker				20-22
23. Caponizer				23-25
24. Chick Culler				26-28
25. Chick Sexer				29-31
26. Inseminator				32-34
27. Sheep Feedlot Hand				35-37
28. Sheep Production Hand				38-40
29. Swine Feedlot Hand				41-43
30. Swine Production Hand				44-46
31. Turkey Production Worker				47-49
On page 15, add jobs that are not listed. Make appropriate checks.				
AGRICULTURAL PRODUCTS				
1. Cotton Gin Machine Operator				50-52

VOCATIONAL AGRICULTURE JOB TITLES	Former and Present Co-op 1	Former Production 2	Pre-Lab Including CVAE & VEH 3	
AGRICULTURAL PRODUCTS				
2. Cottom Sampler				53-55
3. Cotton Weigher				56-58
4. Fleece Tier				59-61
5. Ginner's Assistant				62-64
6. Sheep Shearer				65-67
7. Wool Sacker				68-70
On page 15, add jobs that are not listed. Make appropriate checks.				C-
8. Butter Maker's Assistant				5-7
9. Cheese Blender's Assistant				8-10
10. Cream Separator's Assistant				11-13
11. Dairy Processing Helper				14-16
12. Dairy Processing Machine Operator				17-19
13. Dairy Products Delivery Person				20-22
14. Flavor Room Worker				23-25
15. Homogenizer's Assistant				26-28
16. Ice Cream Maker's Assistant				29-31
17. Kosher Inspector's Assistant				32-34
18. Milk Sterilizer's Assistant				35-37
19. Novelty Maker (Dairy Products)				38-40
20. Pasteurizer's Assistant (Dairy Products)				41-43
21. Egg Candler				44-46
22. Cooler Room Worker (Egg)				47-49
23. Egg Delivery Person				50-52
24. Egg Packager				53-55
25. Egg Processing Machine Tender				56-58
26. Egg Processing Worker				59-61
On page 15, add jobs that are not listed. Make appropriate checks.				
27. Fish and Seafood Delivery Person				62-64
28. Fish and Seafood Processing Helper				65-67
29. Fish and Seafood Processing Machine Operator				68-70
30. Fish Cleaner-Scaler				5-7 C
31. Fish Filleter				8-10
32. Seafood Butcher				11-13
33. Shellfish Shucker				14-16
On page 15, add jobs that are not listed. Make appropriate checks.				

VOCATIONAL AGRICULTURE JOB TITLES	Former and Present Co-op 1	Former Production 2	Pre-Lab Including CVAE & VEH 3	
AGRICULTURAL PRODUCTS				
34. Bolter's Assistant (Grain)				17-19
35. Bulk Grain Hauler				20-22
36. Feed Mixer's Assistant				23-25
37. Grain Elevator Assistant Clerk				26-28
38. Grain Elevator Operator				29-31
39. Grain Processing Helper				32-34
40. Grain Processing Machine Operator				35-37
41. Miller's Assistant (Grain)				38-40
On page 15, add jobs that are not listed. Make appropriate checks.				
42. Hide Handler				41-43
43. Hide Processing Helper				44-46
44. Hide Trimmer				47-49
45. Wool Puller				50-52
On page 15, add jobs that are not listed. Make appropriate checks.				
46. Comb Decapper				53-55
47. Honey Blender's Assistant				56-58
48. Honey Processing Machine Operator				59-61
On page 15, add jobs that are not listed. Make appropriate checks.				
49. Breaking House Worker				62-64
50. Cooler Room Worker (Meat Processing)				65-67
51. Curing-Smoking Assistant (Meat Processing)				68-70
52. Kill Floor Worker (Meat Processing)				C-7 5-7
53. Meat Delivery Person				8-10
54. Meat Processing Helper				11-13
55. Meat Processing Machine Operator				14-16
56. Meatcutter's Assistant				17-19
57. Sausage Maker's Assistant				20-22
58. Shactor's Assistant				23-25
59. Tank House Worker (Meat Processing)				26-28
On page 15, add jobs that are not listed. Make appropriate checks.				
60. Nut Packager				29-31
61. Nut Processing Helper				32-34
62. Nut Processing Machine Operator				35-37
On page 15, add jobs that are not listed. Make appropriate checks.				
63. Poultry Boner				38-40

VOCATIONAL AGRICULTURE JOB TITLES	Former and Present Co-op 1	Former 2 Production	Pre-Lab Including CVAE & VEH 3	
AGRICULTURAL PRODUCTS				
64. Cooler Room Worker (Poultry)				41-43
65. Poultry Cutter				44-46
66. Poultry Dresser				47-49
67. Poultry Packager				50-52
68. Poultry Tankman				53-55
69. Processed Poultry Delivery Person				56-58
On page 15, add jobs that are not listed. Make appropriate checks.				
70. Produce Field Hauler				59-61
71. Packaged Produce Delivery Person				62-64
72. Produce Processing Helper				65-67
73. Produce Processing Machine Operator				68-70
74. Produce Processing Packer				C-8 5-7
On page 15, add jobs that are not listed. Make appropriate checks.				
75. Seed Cleaner				8-10
76. Seed Packager				11-13
77. Seed Processing Machine Operator				14-16
On page 15, add jobs that are not listed. Make appropriate checks.				
AGRICULTURAL SUPPLY AND SERVICE				
1. Agri-Chemical Applicator				17-19
2. Agri-Chemical Field Technician (Scout)				20-22
3. Agri-Chemical Supply and Service Helper				23-25
4. Integrated Pest Management Aide (Agri-Chemical)				26-28
5. To Farm Agri-Chemical Delivery Person				29-31
On page 15, add jobs that are not listed. Make appropriate checks.				
6. Crop Duster, Pilot				32-34
7. Agricultural Flying Service Groundman				35-37
8. Agricultural Flying Service Helper				38-40
On page 15, add jobs that are not listed. Make appropriate checks.				
9. Batch Mixer-Weigher (Fertilizer)				41-43
10. Fertilizer Applicator				44-46
11. Fertilizer Supply and Service Helper				47-49
12. To Farm Fertilizer Delivery Person				50-52
On page 15, add jobs that are not listed. Make appropriate checks.				
13. Artificial Insemination/Palpation Assistant				53-55
14. Feed Store Helper				56-58

VOCATIONAL AGRICULTURE JOB TITLES	Former and Present Co-op 1	Former Production 2	Pre-Lab Including CVAE & VEH 3	
AGRICULTURAL SUPPLY AND SERVICE				
15. Horseshoer (Farrier)				59-61
16. Horsetrainer				62-64
17. Livestock Auction Worker				65-67
18. Livestock Groomer-Shower				68-70
19. Livestock Hauler				5-7 C-9
20. Poultry Hauler				8-10
21. To Farm Feed Delivery Person				11-13
22. Veterinary Assistant				14-16
On page 15, add jobs that are not listed. Make appropriate checks.				
23. Seed Field Technician				17-19
24. Seed Supply and Service Helper				20-22
25. To Farm Seed Delivery Person				23-25
On page 15, add jobs that are not listed. Make appropriate checks.				
26. Dog Groomer				26-28
27. Kennel Worker				29-31
28. Laboratory Animal Caretaker				32-34
29. Pet Store Worker				35-37
On page 15, add jobs that are not listed. Make appropriate checks.				
30. To Farm Agricultural Fuel Delivery Person				38-40
On page 15, add jobs that are not listed. Make appropriate checks.				
AGRICULTURAL MECHANICS				
1. Agricultural Carpenter				41-43
2. Agricultural Concrete or Brick Worker				44-46
3. Agricultural Electrician				47-49
4. Agricultural Facilities Construction Worker				50-52
5. Agricultural Facilities Maintenance Worker				53-55
6. Agricultural Fence Builder				56-58
7. Agricultural Plumber				59-61
On page 15, add jobs that are not listed. Make appropriate checks.				
8. Agricultural Processing Equipment Service Person				62-64
9. Artificial Insemination Equipment Service Person				65-67
10. Dairy Equipment Service Person				68-70
11. Electric Motor Mechanic				5-7 C-10
12. Farm Equipment Mechanic				8-10
13. Farm Equipment Set-up Mechanic				11-13

VOCATIONAL AGRICULTURE JOB TITLES	Farmer and Present Crop 1	Farmer Production 2	Pre-Lab Including CVAE & VEH 3	
AGRICULTURAL MECHANICS				
14. Farm Irrigation Equipment Service Person				14-16
15. Golfcourse Equipment Service Person				17-19
16. Hand and Powertool Equipment Service Person				20-22
17. Horticultural Equipment Service Person				23-25
18. Hydraulics Mechanic				26-28
19. Lawn Sprinkler Equipment Service Person				29-31
20. Livestock Equipment Service Person				32-34
21. Logging Equipment Service Person				35-37
22. Motorboat Mechanic				38-40
23. Outboard Motor Mechanic				41-43
24. Poultry Hatchery Equipment Service Person				44-46
25. Recreational Vehicle Mechanic				47-49
26. Small Engines Mechanic				50-52
On page 15, add jobs that are not listed. Make appropriate checks.				
27. Agricultural Equipment Designer				53-55
28. Agricultural Equipment Draftsman				56-58
29. Agricultural Equipment Operator				59-61
30. Agricultural Facilities Designer				62-64
31. Agricultural Facilities Draftsman				65-67
32. Agricultural Surveyor Helper				68-70
33. Agricultural Welder				5-7 C-
On page 15, add jobs that are not listed. Make appropriate checks.				
FORESTRY				
1. Christmas Tree Farm Worker				8-10
2. Forest Nursery Worker				11-13
3. Forestry Aide				14-16
4. Forestry Technician				17-19
5. Tree Planter (Forestry)				20-22
6. Tree Pruner (Forestry)				23-25
7. Wood Producer				26-28
On page 15, add jobs that are not listed. Make appropriate checks.				
8. Fire Warden				29-31
9. Forest Fire Fighter				32-34
10. Forest Fire Ranger				35-37
11. Forest Fire Suppression Crew Leader				38-40

VOCATIONAL AGRICULTURE JOB TITLES	1 Former and Present Co-op	2 Former Production	3 Pre-Lab including CVAE & VEH	
FORESTRY				
12. Forest Fire Suppression Worker				41-43
13. Forest Insect Ranger				44-46
14. Smoke Jumper				47-49
On page 15, add jobs that are not listed. Make appropriate checks.				
15. Cruiser				50-52
16. Log Marker				53-55
17. Logging Skidder Operator				56-58
18. Saw Mill Worker				59-61
19. Sawyer				62-64
20. Tree Cutting Worker				65-67
On page 15, add jobs that are not listed. Make appropriate checks.				
HORTICULTURE				
1. Floral Consultant				68-70
2. Floral Delivery Person				5-7 C-1
3. Floral Designer				8-10
4. Flower Arranger				11-13
5. Flower Shop Helper				14-16
On page 15, add jobs that are not listed. Make appropriate checks.				
6. Ball and Burlapper				17-19
7. Bonsai Culturist				20-22
8. Flower Harvester				23-25
9. Greenhouse Worker				26-28
10. Mushroom Farm Worker				29-31
11. Nursery Worker				32-34
12. Plant Grower (Fertilize, Water, etc.)				35-37
13. Plant Propagator				38-40
14. Sod Farm Worker				41-43
On page 15, add jobs that are not listed. Make appropriate checks.				
15. Cemetery Worker (Landscaping)				44-46
16. Greenskeeper				47-49
17. Groundskeeper				50-52
18. Landscape Assistant				53-55
19. Landscape Delivery Person				56-58
20. Landscape Drafter				59-61
21. Landscape Service Helper				62-64

VOCATIONAL AGRICULTURE JOB TITLES	1 Former and Present Co-op	2 Former Production	3 Pre-Lab Including CVAE & VEH	
HORTICULTURE				
22. Parks Maintenance Worker (Landscaping)				65-67
23. Tree Surgeon/Pruner/Sprayer				68-70
On page 13 add jobs that are not listed. Make appropriate checks.				C-
24. Garden Center Worker				5-7
25. Plant Maintenance Service Worker				8-10
26. Plant Store Worker				11-13
On page 15, add jobs that are not listed. Make appropriate checks				
RENEWABLE NATURAL RESOURCES				
1. Air Pollution Control Inspector				14-16
2. Air Pollution Control Technician				17-19
On page 15, add jobs that are not listed. Make appropriate checks.				
3. Fish Conservation Aide				20-22
4. Fish Hatchery Worker				23-25
5. Fish Research Technician				26-28
On page 15, add jobs that are not listed. Make appropriate checks.				
6. Land Use Planning Aide				29-31
7. Land Use Planning Technician				32-34
8. Zoning Compliance Officer				35-37
On page 15, add jobs that are not listed. Make appropriate checks.				
9. Commercial Fisherman				38-40
10. Fisheries Technician				41-43
On page 15, add jobs that are not listed. Make appropriate checks.				
11. Botanical Garden/Arboretum Worker				44-46
12. Campground Maintenance Worker				47-49
13. Campground Manager				50-52
14. Game and Hunting Farm Worker				53-55
15. Animal Caretaker				56-58
16. Hunting and Fishing Guide				59-61
17. Park Aide (Recreation)				62-64
18. Park Maintenance Person (Recreation)				65-67
19. Park Patrol Officer				68-70
20. Park Ranger				5-7 C-
21. Recreation Farm Worker				8-10
22. Taxidermist				11-13
23. Zoo or Aquaria Worker				14-16

VOCATIONAL AGRICULTURE JOB TITLES	Former and Present 1 Co-op	Former 2 Production	Pre-Lab Including 3 CVAE & VEH	
RENEWABLE NATURAL RESOURCES				
24. Soil Conservation Aide				17-19
25. Soil Conservation Technician				20-22
26. Waste Water Technician				23-25
27. Water Treatment Plant Officer				26-28
28. Watershed Conservation Aide				29-31
29. Watershed Conservation Technician				32-34
On page 15, add jobs that are not listed. Make appropriate checks.				
30. Fur Buyer				35-37
31. Predatory Animal Hunter				38-40
32. Wildlife Conservation Aide				41-43
33. Wildlife Conservation Officer's Assistant				44-46
34. Wildlife Conservation Technician				47-49
On page 15, add jobs that are not listed. Make appropriate checks.				
OTHER AGRICULTURE				
1. Agricultural Computer Worker				50-52
2. Agricultural Import and Export Worker				53-55
3. Agricultural Loan Officer Assistant				56-58
4. Agricultural Publications Worker				59-61
5. Agricultural Real Estate Worker				62-64
6. Agricultural Scientist Assistant				65-67
Add additional job titles here. Make appropriate checks.				

TABLE A QUALITY DETERMINATION JOBS HELD BY PRESENT AND FORMER CO-OP STUDENTS	Buyer	Classer	Culler	Grader	Inspector	Laboratory Worker	Sanitation Worker	Sorter
1. Christmas Tree								
2. Cotton								
3. Dairy								
4. Dairy Products								
5. Egg								
6. Grain								
7. Hide								
8. Honey								
9. Horticulture								
10. Livestock								
11. Log								
12. Lumber								
13. Meat								
14. Nut								
15. Poultry								
16. Processed Poultry								
17. Produce								
18. Seed								
19. Wool								
Make appropriate additions and checks here.								

C-15
5-12
13-20
21-28
29-36
37-44
45-52
53-60
61-68
C-16
5-12
13-20
21-28
29-36
37-44
45-52
53-60
61-68
C-17
5-12
13-20
21-28

TABLE B AGRICULTURAL SALES JOBS HELD BY PRESENT AND FORMER CO-OP STUDENTS	Auctioneer	Cashier	Clerk	Counter Person	Commission Agent	Sales Person	Sales Representative	
1. Agri-Chemicals								29-36
2. Agricultural Products Processing Equipment								37-44
3. Cotton								45-52
4. Dairy Products								53-60
5. Dairy Supply								61-68
6. Eggs								C-18 5-12
7. Farm Machinery & Equipment								13-20
8. Feed								21-28
9. Fertilizer								29-36
10. Fish and Seafood								37-44
11. Fishing Supply & Equipment								45-52
12. Floral Products								53-60
13. Garden Equipment & Supply								61-68
14. Grain								C-19 5-12
15. Horticultural Supply								13-20
16. Hunting Supply & Equipment								21-28
17. Irrigation Equipment								29-36
18. Livestock								37-44
19. Logs								45-52
20. Lumber								53-60
21. Meat								61-68
22. Nursery Products								C-20 5-12
23. Pet Supply								13-20
24. Poultry								21-28
25. Poultry Supply								29-36
26. Processed Poultry								37-44
27. Produce								45-52
28. Seed								53-60
29. Small Animals								61-68
30. Wool								C-21 5-12
Make appropriate additions and checks here.								

TABLE C QUALITY DETERMINATION JOBS HELD BY FORMER PRODUCTION AGRICULTURE STUDENTS	Buyer	Classer	Culler	Grader	Inspector	Laboratory Worker	Sanitation Worker	Sorter	
1. Christmas Tree									13-20
2. Cotton									21-28
3. Dairy									29-36
4. Dairy Products									37-44
5. Egg									45-52
6. Grain									53-60
7. Hide									61-68 C-2
8. Honey									5-12
9. Horticulture									13-20
10. Livestock									21-28
11. Log									29-36
12. Lumber									37-44
13. Meat									45-52
14. Nut									53-60
15. Poultry									61-68 C-2
16. Processed Poultry									5-12
17. Produce									13-20
18. Seed									21-28
19. Wool									29-36
Make appropriate additions and checks here.									

TABLE D

AGRICULTURAL SALES JOBS HELD BY FORMER PRODUCTION AGRICULTURE STUDENTS

	Auctioneer	Cashier	Clerk	Counter Person	Commission Agent	Sales Person	Sales Representative	
1. Agri-Chemicals								37-44
2. Agricultural Products Processing Equipment								45-52
3. Cotton								53-60
4. Dairy Products								61-68
5. Dairy Supply								C-24 5-12
6. Eggs								13-20
7. Farm Machinery & Equipment								21-28
8. Feed								29-36
9. Fertilizer								37-44
10. Fish and Seafood								45-52
11. Fishing Supply & Equipment								53-60
12. Floral Products								61-68
13. Garden Equipment & Supply								C-25 5-12
14. Grain								13-20
15. Horticultural Supply								21-28
16. Hunting Supply & Equipment								29-36
17. Irrigation Equipment								37-44
18. Livestock								45-52
19. Logs								53-60
20. Lumber								61-68
21. Meat								C-26 5-12
22. Nursery Products								13-20
23. Pet Supply								21-28
24. Poultry								29-36
25. Poultry Supply								37-44
26. Processed Poultry								45-52
27. Produce								53-60
28. Seed								61-68
29. Small Animals								C-27 5-12
30. Wool								13-20
Make appropriate additions and checks here.								

TABLE E

QUALITY DETERMINATION JOBS HELD BY FORMER PRE-EMPLOYMENT LAB STUDENTS

	Buyer	Classer	Culler	Grader	Inspector	Laboratory Worker	Sanitation Worker	Sorter	
1. Christmas Tree									21-28
2. Cotton									29-36
3. Dairy									37-44
4. Dairy Products									45-52
5. Egg									53-60
6. Grain									61-68
7. Hide									C-2 5-12
8. Honey									13-20
9. Horticulture									21-28
10. Livestock									29-36
11. Log									37-44
12. Lumber									45-52
13. Meat									53-60
14. Nut									61-68
15. Poultry									C-2 5-12
16. Processed Poultry									13-20
17. Produce									21-28
18. Seed									29-36
19. Wool									37-44
Make appropriate additions and checks here.									

TABLE F

AGRICULTURAL SALES JOBS HELD BY FORMER PRE-EMPLOYMENT LAB STUDENTS

	Auctioneer	Cashier	Clerk	Counter Person	Commission Agent	Sales Person	Sales Representative	
1. Agri-Chemicals								45-52
2. Agricultural Products Processing Equipment								53-60
3. Cotton								61-68
								C-30
4. Dairy Products								5-12
5. Dairy Supply								13-20
6. Eggs								21-28
7. Farm Machinery & Equipment								29-36
8. Feed								37-44
9. Fertilizer								45-52
10. Fish and Seafood								53-60
11. Fishing Supply & Equipment								61-68
								C-31
12. Floral Products								5-12
13. Garden Equipment & Supply								13-20
14. Grain								21-28
15. Horticultural Supply								29-36
16. Hunting Supply & Equipment								37-44
17. Irrigation Equipment								45-52
18. Livestock								53-60
19. Logs								61-68
								C-32
20. Lumber								5-12
21. Meat								13-20
22. Nursery Products								21-28
23. Pet Supply								29-36
24. Poultry								37-44
25. Poultry Supply								45-52
26. Processed Poultry								53-60
27. Produce								61-68
								C-33
28. Seed								5-12
29. Small Animals								13-20
30. Wool								21-28
Make appropriate additions and checks here.								

Please check (✓) in the appropriate box as you complete each assignment.

SECTION I

☐ Completed

Turn to page 5 and read the instructions for Section II and Step #1.

SECTION II

Step #1

☐ Completed

Turn to page 6 and read the instructions for Step #2.

Step #2

☐ Completed

THANK YOU

Now place this survey in the self-addressed stamped envelope and drop in the mail.

Return to:

Occupational Research Division
Industrial Engineering Department
Texas A&M University
College Station, Texas 77843